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*1961 AWARD WINNER*

♦ RICHARD S. HATCH

♦ An Evaluation of a Forced-Choice  
Differential Accuracy Approach  
to the Measurement  
of Supervisory Empathy

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 consequent loss of business.  
 The second is the fact that  
 the government has been unable  
 to maintain a stable  
 economy. This has led to a  
 loss of confidence in the  
 government and a consequent  
 loss of business. The third  
 is the fact that the government  
 has been unable to maintain  
 a stable political system. This  
 has led to a loss of confidence  
 in the government and a  
 consequent loss of business.





**AN EVALUATION  
OF A FORCED-CHOICE  
DIFFERENTIAL ACCURACY APPROACH  
TO THE MEASUREMENT OF  
SUPERVISORY EMPATHY**

## 1961 Award Winner

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OF SUPERVISORY EMPATHY**

*Research Associate,  
U.S.I. Educational Science  
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RICHARD S. HATCH

62-16136

1962

P R E N T I C E - H A L L , I N C .

*Englewood Cliffs, N. J.*

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L. C. Catalog Card Number: 62-16136

• *Printed in the United States of America*  
29205 — C

## *Foreword*

This volume is one of five doctoral dissertations selected for publication in the third annual Doctoral Dissertation Competition sponsored by the Program in Economic Development and Administration of The Ford Foundation. The winning dissertations were completed during the academic year 1960-61 by doctoral candidates in business administration, the social sciences and other fields relevant to the study of problems of business.

The dissertation competition is intended to recognize and encourage excellence in research on business by graduate students. In specific pursuit of this aim, publication awards are made to persons recently granted doctorates in business whose dissertation research is especially distinguished by its analytical content and strong roots in underlying disciplines. To the same end, awards are made to a selected number of persons outside business schools who in their doctoral dissertations pursued with distinction interests relevant to the field of business.

The dissertations selected include, in addition to Dr. Hatch's, the following:

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*The Term Structure of Interest Rates*

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On behalf of The Ford Foundation, I wish to express my gratitude to the members of the Editorial Committee for the care and thought they devoted to the selection process. The three members of this Committee, who made the final selection of winning dissertations, are: Professor Alex Bavelas of Stanford University, Professor Roy Blough of Columbia University, and Professor Robert Ferber of the University of Illinois.

The Editorial Committee's task was considerably lightened by the assistance of eleven readers, experts in the wide range of disciplines covered in the competition, who carefully screened the dissertations submitted. The Foundation joins the Committee in acknowledging their debt to Professors Paul Breer and Henry A. Landsberger of Cornell University, Richard M. Cyert of the Carnegie Institute of Technology, Robert B. Fetter of Yale University, Samuel Goldberg of Oberlin College, Albert H. Hastorf of Stanford University, Austin C. Hoggatt and Lyman W. Porter of the University of California (Berkeley), Daniel M. Holland of the Massachusetts Institute of Technology, John Neter of the University of Minnesota, and Harry V. Roberts of the University of Chicago.

Finally, my colleagues and I wish to acknowledge the important contribution of Prentice-Hall, Inc., to the publication of the selected dissertations.

DYKE BROWN  
VICE PRESIDENT  
THE FORD FOUNDATION

New York, New York  
January, 1962

## *Acknowledgments*

This research was carried out under the supervision of Dr. Marvin D. Dunnette, whose insightful direction and unshakable good humor are acknowledged with deepest gratitude. Professor Raymond O. Collier provided assistance and criticism in the design of the experiment.

Warm appreciation is also expressed to Professor Emeritus Donald G. Paterson for his guidance and wise counsel throughout the course of my graduate study.

To the following general sales managers of Minnesota Mining & Manufacturing Company, whose sincere interest and cooperation made possible the participation of their sales personnel, my grateful thanks are extended: Mr. R. L. Ackerberg, Mr. F. A. Blankenbaker, Mr. E. L. Decker, Mr. D. E. Denham, Mr. D. J. Douglas, Mr. L. A. Johnson, Mr. C. A. Kelley, Mr. R. L. Sheppard, Mr. D. H. Woodrow, and Mr. J. W. Young.

These acknowledgments would not be complete without proud mention of Lloyd and Edith Hatch, my parents, whose assistance in countless active ways facilitated the completion of this work.

Finally, a very special debt is owed to my wife, LaDonna, not for her valued clerical help alone, but for her constant encouragement, cheerful endurance, sympathetic support, and unfailing patience.

RICHARD S. HATCH





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## CHAPTER 1

### *Introduction*

*If you must sell John Smith what John Smith buys,  
You must see John Smith through John Smith's eyes.*

— ANONYMOUS

This quotation is typical of the common-sense “validity” which abounds in many applied fields where the concept of empathy is widely believed to have significance in the daily practical relationships between people.<sup>1</sup> The “ability to place oneself in another person’s shoes,” as empathy is often defined, is a social skill believed to have significance at every level of the occupational hierarchy. The relationships between salesmen and their customers, managers and their subordinates, clinicians and their patients, teachers and their students, politicians and their electorates, and counselors and their counselees are but a few examples from a long list which might be provided. Empathy, or the accurate prediction of the feelings, attitudes, or opinions of another person, has been described by such processes as social perceptiveness, clinical intuition, insight, understanding, predictive abstracting, social sensitivity, and diagnostic competence.

In 1897 Professor T. S. Lipps (1897) used the term *einfulung*, translated as “empathy,” in the explanation of the geometrical effects of

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<sup>1</sup>Father Brown, a fictional detective created by G. K. Chesterton (1951), always solved his cases by projecting himself into the personality of the murderer by means of a process of “inner salience.”

architecture. His empathy theory suggested that the observer's emotional nature was stimulated by geometrical figures, and he sought to explain optical illusions by means of the observer's emotional involvement in the figures. For example, a vertical line was seen to "resist" gravity and thus appear longer than an identical line presented horizontally. The empathy of Lipps has little to do with empathy as defined today.

Little research was done for approximately five decades. The decade of the fifties, however, with its rather strong research interest in interpersonal perception on the part of social psychologists, produced a host of operational definitions, theoretical and methodological controversies; and, consequently, a broad spectrum of terms for the empathic process. It would probably be fair to state that the term "empathy" has survived as the most universally recognized single expression for the description of the process in which a judge predicts the response behavior of an other (person or persons). This is true in spite of the confusion between the terms "empathy" and "sympathy" to those unfamiliar with the literature in this area.

A strong logical argument for the existence and importance of an empathic ability has characterized the literature (McMurry, 1953; Remmers, 1950). Remmers (1950) described empathy as the "giftee" of Robert Burns, "to see ourselves as others see us." Investigators sometimes strained to interpret the presence of a genuine empathic ability in their data (Bell and Hall, 1954). Unfortunately, a number of methodological errors and statistical artifacts, unrecognized by early researchers, operated to produce spuriously positive results (Chowdhry, 1949; Nagle, 1954). The coincidence of investigator zeal and impure measurement procedures led to a rash of studies in the early 1950's with extremely promising implications for social, political, clinical, and personnel psychologists. This research activity generated a number of critical papers (Campbell, 1955; Cohen, 1953; Cronbach, 1955; Cronbach, 1958; Cronbach and Gleser, 1953; Cronbach, Hartmann and Ehart, 1953; Crow, 1954; Crow, 1956; Crow, 1957a; Crow, 1957b; Crow and Hammond, 1957; Gage, Leavitt, and Stone, 1956; Gage and Cronbach, 1955; Hastorf and Bender, 1952; Hastorf, Bender and Weintraub, 1955). As a result, a considerably clearer conceptualization of the empathic process evolved. Careful analysis of the measurement procedures commonly employed brought to light the serious deficiencies and



inadequacies of existing procedures, reducing the majority of findings to a series of meaningless and uninterpretable results. The major criticisms were formidable, and researchers found themselves challenged to design a measure avoiding the pitfalls identified in previous approaches, now generally conceded to be at least unsatisfactory if not totally unacceptable. The very small number of studies claiming an unbiased demonstration of the measurement of an empathic ability in the last few years attests to the challenge presented by the measurement problem in social perception research (Cline and Richards, 1960).

This thesis is an attempt to design a methodologically sound technique for the measurement of an empathic ability or trait. No sophisticated relationships between an empathic "sensitivity" and "outside" variables has been investigated. Nor has the theory of interpersonal behavior been advanced by this effort. The research here reported attacks directly the measurement problems thus far identified in the literature, endeavoring to improve the research techniques and "tools" desired by investigators of interpersonal perception.

Chapter 2 reviews methodological problems involved in the measurement of empathic behavior. The following chapters outline a measurement technique and evaluate its application to an empirical situation.

## CHAPTER 2

# *Review of the Literature from the Standpoint of Methodological Problems*

Bertrand Russell once observed that (physicists) . . . "have not yet reached the point where they can distinguish between facts about relativity and mathematical operations which may have nothing to do therewith." In psychology the statement, with the term "empathy" substituted for "relativity," could not be better applied than to the research in social perception (Gage and Cronbach, 1955). The large number of components<sup>1</sup> derived from what once was considered a simple accuracy score attest to the complexity existing with respect to the mathematical manipulations utilized in measuring empathic accuracy.

This chapter has been organized around the methodological problems inherent in research involving social perception measurement. As this thesis is more an investigation of a measurement approach than it is an

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<sup>1</sup>Cronbach (1955) has identified at least seven components of the typical empathic accuracy score: E (Elevation component); DE (Differential Elevation) which is further reduced to include "Assumed Dispersion in Elevation" and "Elevation Correlation (DE<sub>r</sub>); SA (Stereotype Accuracy) which is further reduced to include "predicted Variation in Item Means" and "Stereotype Correlation" (SA<sub>r</sub>); DA (Differential Accuracy) which is also further reduced to include "Assumed Dispersion on any item — Elevation held constant" and "Differential Correlation" (DA<sub>r</sub>).

investigation of specific correlates of empathic sensitivity, primary interest in previous research concerns the various solutions to the measurement problem which have been proposed by researchers to date. For this reason, the review is concerned almost entirely with the measurement processes employed by investigators rather than the specific findings reported by their researches.

The literature in the area of person perception contains much controversy. A portion of the controversy has directly resulted from divergent interpretations of results presented by the studies, as, for example, Talland's (1954) argument over Chowdhry's (1949) interpretation of her own thesis. The major controversies (Campbell, 1955; Cronbach, 1955; Cronbach, 1958; Crow, 1954; Crow and Hammond, 1957; Gage and Cronbach, 1955; Gage, Leavitt, and Stone, 1956; Hall and Bell, 1953; Hastorf and Bender, 1952; Hastorf, Bender, and Weintroub, 1955; Nagle, 1954; Stone, Leavitt, and Gage, 1954), however, arise out of the methodological errors and statistical artifacts present in almost every measure of empathic accuracy which has thus far been employed by investigators. The criticisms are often complex and statistical in nature. It is believed a thorough understanding of the methodological problems presented by the person perception process is the first requisite to an evaluation of research in this area; consequently, this review will consider in some depth the presently identified methodological problems associated with the measurement of interpersonal perception.

The lowest order requirement for any new measurement technique must be that it avoid the pitfalls and criticisms associated with techniques for which it is to be substituted. A further purpose of this chapter, then, is to evolve methodological criteria appropriate for the evaluation of a legitimate measuring procedure. In subsequent chapters, the criteria will be applied to the measurement approach proposed in this chapter.

The following review of the methodological problems in social perception measures follows closely arguments provided by Cronbach (1955, 1958), Gage and Cronbach (1955), Cronbach, Hartmann, and Ehart (1953), Cronbach and Gleser (1953), Crow (1954, 1957b), and Crow and Hammond (1957). A more thorough understanding of the measurement problems than that provided in this chapter may be gained by a study of the critiques referenced, especially the excellent critical reviews by Gage

and Cronbach (1955) and Cronbach (1955). It is believed the review outlined here will be sufficient, however, to provide the reader with an adequate grasp of the major errors prevalent in the literature.

### **2.1. Interrelationships between Real Similarity, Assumed Similarity, and Accuracy**

The measurement of an empathic "skill" or "ability" involves the manipulation of the following psychological entities:

- a* The Judge's self-description.
- b* The Other's self-description.
- c* The Judge's prediction of *b*.

The relationships between these three directly measurable response values are defined by Cronbach as follows:

RS (Real Similarity) : where  $a = b$

AS (Assumed Similarity) : where  $a = c$

ACC (Accuracy) : where  $b = c$

Any two of these relationships are independent; the remaining relationship is a direct resultant of the other two. Lack of a thorough understanding of the functional interrelationships between the Real Similarity (RS), Assumed Similarity (AS), and Accuracy (ACC) expressions provides the basis for much of the confusion arising out of inconsistencies in social perception research.

***Difference Scores.*** Consider the usual measurement process employed in empathy research. A Judge is asked to fill out a psychological scale (e.g., attitude scale) exactly as he feels a specified "Other" would respond to it (Judge's prediction of the Other's self-description score). The Judge is also usually asked to fill out the instrument for himself (Judge's self-description). Finally, the "Other" is asked to fill out the instrument for himself (Other's self-description). The Judges may make predictions for a number of Others or for a single Other. In some situations each Judge predicts for a different Other or group of Others. This particular variation in experimental approaches does not alter the following argument. It may be shown that where the Assumed Similarity (AS) between the Judges and their Others is constant and greater than Real Similarity (RS); the Accuracy (ACC) exhibited by any Judge must vary directly with RS. Said another way, where each of a number

of Judges possesses high RS with their Others, their Accuracies will correlate perfectly with the degree to which the Judges Assume Similarity with their Others.

A typical situation is one in which each of the Judges predicts with a high degree of Assumed Similarity. The Accuracy score, then, varies directly with the amount of Real Similarity existing between the Judges and their respective Others. This latter relationship, Real Similarity, may best be viewed as a fixed constant which exists between a Judge and any specified Other as a function of the sampling (just as, for example, the age difference between a Judge and any specified Other may be considered a "given" resulting from the particular sample). With the high degree of Assumed Similarity often found in empathy studies (especially where Judges predict for some variable allowing self-flattering predictions) the resulting Accuracy scores bear a highly significant relationship to this original constant, RS (see Campbell, 1955, pp. 694-695). Such Accuracy scores certainly do not represent "novel emergents" reflecting an empathic sensitivity of some kind. They are simply the logical consequences of RS-AS-ACC "linkages" and impossible to interpret.

Possibly the best example in the literature of a research where the investigator failed to recognize the basic RS-AS-ACC interrelationships existing in the empathic process was carried out by Nagle (1954). In this study each of fourteen supervisors predicted for a different group of Others, his own subordinates. The prediction task consisted of estimating the number of subordinates responding in a favorable direction to a number of employee attitude (morale) items. An Accuracy score for each supervisor was computed by summing, over the items, the differences between the supervisor's predictions and the actual response values obtained from the subordinates. A measure of the "morale" of each of the supervisor's groups was obtained from the same instrument used for the predictions by summing over subordinate responses. The correlation between the supervisors' Accuracy scores obtained from the 22 items on "Attitude Toward Supervisor" and the groups' responses on the same 22 items turned out to be  $+ .90$ . Nagle concluded that supervisory sensitivity (empathic accuracy) and the attitudes held by subordinates toward their supervisor were highly related.

If each of the supervisors predicted their subordinate groups would have highly favorable attitudes on the "Attitude Toward Supervisor" key, that supervisor would receive the best Accuracy score whose group



attained the highest total on the key. The correlation between Accuracy scores and group morale should, then, be  $+1.00$ . The slight degree of variation in the supervisors' predictions could easily account for the lowering of this correlation to  $+.90$ . Nagle did not report the raw data. Nevertheless, the *possible* operation of the artifactual mechanism discussed above is sufficient to reject Nagle's findings as uninterpretable. And, whether or not the supervisors made self-flattering predictions, the measurement approach must be considered vulnerable and, as such, insupportable as a tool for future research.

In terms of the previously defined expressions the correlation was between ACC,  $b-c$ , and the Other's self-score,  $b$ . If  $c$  is relatively constant for all Judges, both sides of the equation are identical. The artifactual relationship produced is analogous to the kind of errors made with intelligence measures in early attempts to relate IQ to age or any variable related to age. In Nagle's correlation,  $b$  is a component of both measures in the correlation; in the intelligence literature, chronological age (CA) sometimes occurred as an identical component in the two measures being correlated. (A discussion of Index-correlations may be found in McNemar, 1949, pp. 136-138.)

The artifactual relationship may also occur whenever the Others' self-scores,  $b$ , correlate with the "outside" variable which is to be paired in a correlation with the Judges' Accuracy scores. Gage and Cronbach (1955) suggest that researchers test for the presence of artifactual relationships between the Accuracy scores and criterion variables by checking for relationships between the "response to be judged" and these same criterion measures.

***Difference-scores versus Correlation Methods.*** What appears to be a paradox in two approaches to the measurement of empathic accuracy has been discussed by Crow:

The difficulty stems from failure to recognize that two meanings of predictive accuracy are involved. The use of the correlation scoring method defines predictive accuracy as the ability to vary one's predictions as the actual situation varies. The difference score method defines predictive accuracy as the ability to approximate the actual situation. By the difference score method a subject (Judge) is penalized for a systematic error in estimation of the magnitude of the actual situation. By the

correlation method the subject (Judge) is not so penalized. Conversely, a subject is penalized by the correlation method if, although he has approximated the actual situation, his predictions do not vary concomitantly with the actual scores. The choice of which technique to use will depend on the purpose for which a study is conducted, although a second basis for choice depends upon the empirical relationships between (the) two procedures (Crow, 1954, p. 57).

Crow used both a correlation method and a difference score method called "The Random Comparison Method of Chance Determination." The latter method will be discussed in a subsequent section of this chapter.

A distinction should be made between correlation approaches requiring a Judge to differentiate among *several* Others on a single variable and those requiring a Judge to predict responses on a number of variables for a *single* Other. The distinction is important, for in the latter situation it is readily apparent that where a Judge predicts the self-scores for a single Other on a number of items or scales (variables), the RS-AS-ACC problem is involved whether the correlation is in terms of response values on the variables or a ranking of the variables.

The correlation approach removes statistically the differences in means and variances existing between the predictions and the Other's self-scores. Thus, the response sets associated with variability of prediction and response (discussed later in this chapter) are removed along with the "Elevation" component discussed by Cronbach (1955). The procedure does not remove the RS-AS-ACC problem, however. The "linkage" remains. The influence of RS-AS relationships on ACC correlations has been referred to as "implicit personality theories" (Cronbach, 1955), "Assumed Self-Typicality" (Gage, 1952), and "personal constructs" (Kelley, 1955).

Returning to the situation in which a correlation approach involves a Judge's predictions of the self-score of each of a number of Others on a single variable, the problem of interpreting such correlations is found to be equally difficult. The tendency of a Judge to assume similarity (which must be considered as a response set) differs from Other to Other apparently as some function of the Judge's generalized attitude toward the Other (Fiedler, 1953). The tendency to assume similarity is fairly constant over preferred Others; however, knowledge of the degree of AS

between a Judge and a "liked" Other provides no basis for predicting the degree of AS which will be exhibited by the Judge for a "disliked" Other (Rudin, Lazar, Ehart, and Cronbach, 1952).

A number of studies were carried out investigating the differences in empathic sensitivity between "leaders" and "non-leaders" of variously structured groups (Campbell, 1953; Chowdhry, 1949; Green, 1948; Greer, Galanter, and Nordlie, 1954; Hites and Campbell, 1950; Sprunger, 1949; Williams and Leavitt, 1947). The findings are wholly inconsistent. Campbell's (1955) criticism of this type of study, especially those of Green (1948), and Williams and Leavitt (1947), follows that of Gage and Cronbach given above. His criticism of the Greer, Galanter and Nordlie study (1954), however, deserves quotation:

The procedures of Grear, et al., are somewhat more complicated than those of the other two studies, in that the measure of "interpersonal knowledge" is based not only on the person's guess as to his own status, but also his guess as to the status of the other squad members. But even were they to reanalyze the data so as to base each person's I (ACC) on his ranking of other persons than himself, an irrelevant source of correlation would remain. Each person will tend to regard the persons whom he likes best as having high status. Since there is presumably some correlation between the status of friends, those who are of high status will tend to have friends of high status, and as a function of this will score high on insight. Since there will be little variance in the guessed status of friends, most of the variance in insight will come from the actual status of friends (Campbell, 1955, p. 694).

Campbell's criticism explains such findings as, "Popular individuals were more accurate in this social perception than were less popular individuals" (Greer, et al., 1954), "Judges more typical of a group have higher accuracy in judging members of that group" (Gage and Cronbach, 1955), and in general, findings where "appointed," "elected," or "sociometrically selected" leaders are found to be more empathic than other members of their groups.

It might be suggested that the method of partial correlation be used, the notion being to remove the systematic variation attributable to AS or RS from the ACC correlation. Hastorf and Bender (1952) attempted this sort of modification of the Accuracy measure without using a partial



correlation. The idea was similar and the result of a partial correlation approach would be equally as unsuccessful as Hastorf and Bender's "refined empathy" measure. In their approach, the number of times a Judge assumed the Other to be similar to himself (AS) was called "projection." The total number of times the Judge accurately predicted the Other's self-score (ACC) was called "raw empathy." Their "refined empathy" was obtained by subtracting the projection score from the raw empathy score. The projection total (AS) may be seen to contain items contributing to the "raw empathy" total. Thus, a Judge is penalized for Accuracy in the presence of Real Similarity. Gage and Cronbach (1955) define these as Warranted Assumed Similarity (WAS) items. The only other source of "raw empathy" items are the Warranted Assumed Dissimilarity (WAD) items. Gage and Cronbach (1955, p. 416) present a figure which has been reproduced in this thesis as Fig. 1. It may be seen that both WAS and WAD items contain two logical components, empathic Accuracy and chance Accuracy. Chance Accuracy occurs when: (a) Real Similarity and Assumed Similarity (WAS in Fig. 1) describe the Judge-Other relationship, and the Judge does *not* have knowledge of the Other, but assumes similarity; or when, (b) Real Dissimilarity and Assumed Dissimilarity (WAD in Fig. 1) describe the

	$a \neq b$ Real Dissimilarity (RD)	$a = b$ Real Similarity (RS)
$a = c$ Assumed Similarity (AS)	Unwarranted Assumed Similarity (UAS) $a = c \neq b$	Warranted Assumed Similarity (WAS) $a = b = c$
$a \neq c$ Assumed Dissimilarity (AD)	Warranted Assumed Dissimilarity (WAD) $a \neq b = c$	Unwarranted Assumed Dissimilarity (UAD) $a = b \neq c$

$a$  = Judge's self-description  
 $b$  = Other's self-description  
 $c$  = Judge's prediction

**Fig. 1.** Possible combinations of Assumed and Real Similarity on any dichotomous item.

Judge-Other relationship, and the Judge does *not* have knowledge of the Other, but assumes dissimilarity. Where the Judge *does* have knowledge of the Other, theoretically he does not "assume" anything. Nevertheless, there is no way of differentiating *chance Accuracy* resulting from the coincidence of AS and RS or of AD and RD in the *absence of knowledge* of the Other, and *empathic Accuracy* resulting from the *presence of knowledge*

of the Other and the coincidence of either AS and RS or AD and RD. The mechanical operations for scoring the two situations are identical.

The partial correlation approach would fail for the same reasons that the refined empathy approach failed. The interpretation of the partial correlation would be subject to the same difficulties encountered by Hastorf and Bender in attempting to interpret their refined empathy score.

The complexity of the functional interrelationships associated with the basic expressions, RS, AS, and ACC, becomes apparent when one considers the numerous ways these expressions have been manipulated by various approaches to the measurement situation. Investigators have employed situations in which Judges predict for "standard Others," where each Other is known equally well by all Judges (Crow, 1954), "standard" groups of Others (Chowdhry and Newcomb, 1952), and for each of a number of Others, differing for each Judge (Johnson, 1954). The predictions have been aimed at group behavior, "mass" empathy, (ten studies are cited by Taft, 1955) and at individual behavior (see Hall and Bell, 1953; or Norman and Leiding, 1956). Judges have ranked Others (Dymond, Huges, and Raabe, 1952), estimated the percentage of a group responding in a given direction (Gage and Suci, 1951), and predicted the point of response of an "average" Other (Norman and Ainsworth, 1954). Attempts have been made to investigate the empathic process with "representative designs" (Crow, 1957a), "intermediary keys" (Gage, et al., 1956), and the control of AS employed by the Judges (Hastorf and Bender, 1952). The net result of these widely divergent approaches to the measurement situation has been to complicate the task of identifying the basic components of the empathic process and to modify in unknown ways the interrelationships between them. It is certainly not unreasonable to expect that various approaches may complicate the RS-AS-ACC relationships to the point where Gage and Cronbach's informal "check" (see page 8) for crude artifactual "linkages" should fail, even though the interaction of Real Similarity and Assumed Similarity may not have been eliminated as the underlying determinant of Accuracy.

As a consequence of this, advocacy of any new measurement technique must be accompanied by a discussion of the RS-AS components and the manner in which the technique alters or eliminates their effect on the Accuracy scores.

Solution of the RS-AS-ACC problem, therefore, is identified as a major criterion in the evaluation of the measurement technique proposed.

## 2.2. Response Sets

The manner in which a person utilizes a response surface, as, for example, the tendency to respond to extremes of an attitude surface ("Strongly Disagree" and "Strongly Agree"), is a fairly stable personality characteristic (Crow and Hammond, 1957). The result of this is Judge-to-Judge and Other-to-Other differences in response variability. This phenomenon places serious limitations on the interpretation of Accuracy scores, as the magnitudes of these scores are strongly influenced by prediction and response variabilities. One example of the influence of response sets may be a spurious increase in the reliabilities of the Accuracy measure. Judges with large prediction variance risk large absolute errors of prediction, and the variability of prediction associated with a Judge is fairly stable. Crow and Hammond (1957) report correlations between  $+ .47$  and  $+ .74$  for "adherence to stereotype," "the inverse of the average variance of an S's (Judge's) estimations." Any constant influence upon the Judges' Accuracy scores which differs from Judge to Judge will spuriously increase the reliability of the scores. Such a finding has nothing to do with the "true" reliability of any empathic "ability" purportedly measured by the Accuracy scores.

Again, where two Judges are equally empathic or knowledgeable about the self-scores of an Other, and this knowledge is less than perfect, the Judge using an overly large variability in his predictions risks the largest absolute errors of prediction. The Judge consistently predicting with lower variability, assuming the prediction means of the two Judges to be identical, makes an equal number of errors, but his average error is smaller. This lower variability of prediction alone could provide superior Accuracy. Such a result may be totally independent of the Judges' *knowledge* of the Other. It is quite obviously fallacious to assign different degrees of "empathic" ability to two Judges where the causal mechanism may be shown to be an uncontrolled variable, in this case prediction variability on the part of the Judges.

The same logic applies to the case where response sets exist among the Others, even though identical prediction variances may characterize the Judges. Where each Judge has equal knowledge of his respective

Other, and this knowledge is less than perfect, the differences in response variability from Other to Other will directly influence the size of the prediction errors. Again, it is not warranted to conclude that resulting differences in Accuracy among the Judges reflect differences in "insight," where such Accuracy may be shown to have been directly influenced by an uncontrolled variable, in this case response variability on the part of the Others.

Discussion of these artifacts in social perception measures has involved deliberately structured examples. The picture becomes considerably more confused in the typical empirical investigation where Judges differ not only in their RS-AS relationships with their respective Others, but in the *response sets* which they, as well as their respective Others, bring to the measurement situation.

The second major criterion, therefore, for evaluating the measurement technique proposed in this thesis is identified as the control of response set influences upon the Accuracy score.

### 2.3. Methods Involving Comparisons with Chance

Several methods of measuring empathic ability have been designed to give the investigator a "psychological chance baseline" against which to compare the accuracy of the Judges' predictions. Such a method is utilized in this thesis. Early attempts by Luft (1950), Dymond (1950), and Notcutt and Silva (1951) to determine "better than chance" levels of prediction accuracy contained erroneous statistical assumptions of an obvious nature, and have been competently discussed by Crow (1954). The most sophisticated attempt to design such an approach was undertaken by Crow (1954) in his thesis and will be considered here in some detail.

Crow recognized the influence of "response sets" presented by Judges and Others alike, in their response behavior. He devised his "Random Comparison Method of Chance Determination" so as to eliminate any systematic influence of outside factors (response sets) on the determination of chance success. This was accomplished by first comparing the Judge's predictions with "unintended" Others, i. e., scoring each prediction against all self-scores of Others for whom the predictions had *not* been



intended.<sup>2</sup> The argument was: a higher accuracy score should result where a Judge's prediction is compared with the self-score of an Other for whom the prediction is intended, than where the same prediction is compared with the self-score of a random Other for whom the prediction is *not* intended. Crow computes "Random Comparison frequency distributions" (RCFD) resulting from the comparisons of all of the Judges' predictions with *all* of the Others' self-scores. The distribution consisted of distance scores, and the median of these distance scores was obtained. Each of Crow's 80 Judges was predicting the self-score of the same ten "standardized" Others. Any single prediction by a Judge, when compared with the self-score of the intended Other, would produce an "intentional" accuracy score. It should then be possible to compare such an accuracy score with the median of the "Random Comparison frequency distribution" to determine whether the "intentional" accuracy exceeded the "unintentional" accuracy. As each Judge had predicted ten times, once for each of the ten "standardized" Others, it would be possible for him to surpass, by chance alone, the median of the RCFD with half of these predictions. Crow used a Chi-Square analysis, broken into five degrees of freedom associated with the number of each Judge's Accuracy scores surpassing the median of the RCFD. The theoretically expected frequencies, Crow argued, could be determined in advance by expansion of the binomial expression,  $(\frac{1}{2} + \frac{1}{2})^{10}$ .

The statistical assumptions underlying the calculation of expected frequencies from the binomial coefficient would seem to be violated, as each Judge's ten predictions are not independent but correlated with one another. A Judge's predictions are subject to the influence of a number of response sets of the type previously discussed. A Judge with a very large elevation component (large discrepancy between the mean of his predictions and the mean of the Others' self-scores) would produce ten "intentional" difference scores, all of which would be worse than the median of the RCFD. Another Judge, whose "intentional accuracies" may be no better than his "unintentional accuracies" but whose elevation component is very small, could produce ten "intentional accuracies,"

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<sup>2</sup>In practice, Crow actually included the self-scores of Others for whom the predictions *had* been intended; however, if empathic accuracy existed for his Judges, this procedure would only tend to make these "unintended" or chance accuracies more accurate on the average — a conservative manner of arriving at his "Random Comparison frequency distribution."

all of which would surpass the median of the RCFD. Instead of the binomial distribution expected if only chance accuracy were operating, a quite different distribution might result due to the influence of response set conditions. In fact, Crow did find significance for sixteen of seventeen Chi-Square computations carried out on his "Movie Case Test Measures."

The fact that one of Crow's significant Chi-Squares (.01 level) resulted from significantly worse than chance prediction accuracies on the part of the Judges, receives the following explanation:

This result is readily attributable to a systematic bias in their predictions, however, for the students all tended to underestimate the reticence of the patients. This fact is of significance in the context of the research project carried out, but is not of direct concern in this study (Crow, 1954, p. 47).

The admission that a general response set could influence his Chi-Square results in such a way opens his technique to the criticism that response sets might also produce, through the same biasing mechanism, statistically significant Chi-Square results in a *better* than chance direction.

If the "worse than chance" results were *not* due to response sets, Crow must interpret such results in terms of a "negative empathy" on the part of his Judges. "Negative empathy" implies that his Judges were significantly *inaccurate*. Thus, they would have had to predict, *with accuracy*, the *wrong* self-scores of their Others. Such a situation would be possible where, for example, the Judges had erroneous knowledge of the Others or had formed fallacious impressions of their Others. Such impressions would have to be specific and "accurately" fallacious, rather than randomly fallacious. Another way of interpreting "negative empathy" would be to describe the predictions as the result of the *presence* of inaccurate information, as opposed either to the *absence* of accurate information (chance accuracy), or the *presence* of accurate information (positive empathy).

The interpretation of "worse than chance" results as "negative empathy" is difficult, psychologically, and would not seem applicable to Crow's data. On the other hand, the interpretation of worse than chance results as due to uncontrolled response sets is considerably more in line with the "law of parsimony." Crow, himself, prefers this explanation. It is difficult, however, to see why Crow utilizes this explanation for

worse than chance Chi-Square results while interpreting all better than chance Chi-Square results as due to superior clinical judgment on the part of his Judges.

Crow points out an important feature of an adequate empathic accuracy measurement approach. Such an approach should provide scores which may be tested statistically against a chance baseline of some kind. Some investigators (Gage, 1952) have provided correlations between Accuracy scores and "other measures" which, they argue, could not differ significantly from zero if the accuracies of the Judges were only a chance phenomenon. Aside from the very strong possibility of artifactual correlations arising from the deficiencies in the measurement technique, Crow points out the equivocal nature of negative results. Even if an empathic ability existed among the Judges, and if such an ability were to be measured successfully, relationships between the Judges' possession of such an ability and their possession of other abilities selected for comparison by the investigator may not be significant. Where nonsignificant correlations are found between an empathic accuracy measure and some outside criterion, there is no basis for either rejecting or accepting the accuracy measures. It may not be determined, for example, whether the Judges have demonstrated superior "insight" in their predictions of their Others' self-scores or not.

The final criterion for the evaluation of the measurement approach proposed in this research shall therefore be defined as the capability provided by the technique for testing better than chance prediction behavior, even in the absence of any outside criterion correlations.

#### **2.4. Summary of Methodological Considerations**

It has been pointed out that scores once considered as simple measures of empathic accuracy really exist as highly complex "global" expressions containing numerous components. These components have often been ignored, or, at best, poorly understood by the investigators of social perception. The linkages between the various components of empathic accuracy scores, in conjunction with response sets of various kinds, have served to invest research results with artifactual relationships and methodological errors.

The major criticisms are two: (a) failure to recognize the RS-AS-ACC relationships resulting from the "dyadic" nature of empathic accuracy

measures; and (b) failure to recognize the influence of response sets, as exhibited by both Judges and Others, on empathic accuracy measures.

Cronbach (1958) has taken a dim view of "global" approaches as a result of his review of the methodological problems in social perception measurement. He seems to feel that concepts like empathy, projection and identification should be replaced by more critical investigations of the components of the perceptual relation, e.g., response sets, stereotype accuracy, parameters of Judge-to-Judge variation in central tendency of prediction, etc.

Others disagree with this viewpoint and continue to control one set of biases only to embrace another. Cline and Richards (1960), in utilizing a "global" approach involving methodological problems of the type previously critiqued by Cronbach, state:

It is therefore still meaningful to talk about a general trait. There are numerous precedents for this in psychology. Perhaps the clearest example is the variable intelligence, which has been demonstrated to consist of several independent components but is still treated as a meaningful General trait. In investigations of intelligence, even those studies indicating a G factor have typically also shown several independent group factors (Cline and Richards, 1960, p. 5).

The comparison posed above between a general empathic ability and intelligence is legitimate only to the extent that the components existing in the measure of empathic ability are not uncontrolled factors operating in some unknown way so as to render the "global" measure meaningless or uninterpretable. The uncontrolled RS-AS-ACC effects, in addition to response set biases, contained in most "global" measures of empathic accuracy do *not* qualify as legitimate components of a "global" empathic accuracy measure.

The investigator agrees with Cline and Richards in their overall argument for the usefulness of a "global" empathic measure; he disagrees, however, with the probable usefulness of "global" measures of empathic accuracy where such measures contain uncontrolled biasing components, conceptually unrelated to the empathic process. It is the purpose of this thesis to investigate a method of measuring empathic accuracy resulting in a "global" score; however, it is believed the biases which have been identified by Cronbach and others have been systematically controlled or eliminated.



In summary then, three major problem areas have been identified from the literature as the important contributing factors to deficiencies in previously employed empathic accuracy measures. The three areas of criticism will be used as criteria for the evaluation of the measurement technique utilized in this thesis. The three methodological criteria for an acceptable empathic accuracy measurement technique are:

1. The control or elimination of Real Similarity-Assumed Similarity effects upon the Accuracy scores.
2. The control or elimination of Judge-originating and Other-originating response set influences on the Accuracy scores.
3. The provision of a capability for testing "better than chance" Accuracy without recourse to correlations with outside criterion variables.

## CHAPTER 3

# *The Forced-Choice Differential Accuracy Measure*

This chapter presents a solution to the measurement problems reviewed in Chapter 2. In the three following chapters the criteria identified as relevant to an evaluation of a legitimate empathy measure are applied to the measure proposed in this chapter.

Gage, Leavitt, and Stone (1956) mention the possible application of a forced-choice format in the control of a "favorability" set in the Judges' prediction behavior:

Similarly, a forced-choice format, in which the favorability of various choices has been equated within each item, will reduce the reliable favorability-of-prediction variance in the Judges' predictions (Gage, et al., 1956, p. 261).

The set discussed by Gage, et al., concerned the high degree of Real Similarity resulting from the tendency of Others and Judges to respond favorably to a large number of items. This would certainly be the case where the items normally received a very high percentage of favorable responses. The statement, "Honesty is the best policy," for example, might be expected to receive well over 95 per cent favorable responses from individuals asked to give their opinions on the statement. A Judge, when asked to predict an Other's self-score on the statement, would probably predict a favorable self-score with or without any knowledge of the Other for whom the prediction is intended.

There is no reason why the suggestion to use a forced-choice format should not be applied to other response sets influencing interpersonal perception measures. Such a viewpoint has been adopted in this thesis. The use of the forced-choice format has been extended to the control of those response sets identified in the literature as of major importance in their influence on the Judges' Accuracy. In addition to the control of response sets (discussed in Chapter 5), the forced-choice format was so structured as to enable the manipulation of Real Similarity and Assumed Similarity relationships presented to the Judges. The manipulation of the RS-AS relationships was accomplished in such a way that their "interlocking" relationship with Accuracy, as measured in the forced-choice situation used, was eliminated. Chapter 4 presents the method of controlling RS-AS-ACC effects with the Forced-Choice Differential Accuracy (FCDAA) measure of empathy presented below.

### **3.1. Differential Accuracy**

Among the several components of empathic accuracy measures identified by Cronbach (1955), "Differential Accuracy" (DACC) was viewed by this investigator as most closely approaching the "core" of the trait or ability sought by researchers. Cronbach's discussion of the DACC component is interesting in this regard:

The Differential Elevation Correlation and the Differential Accuracy Correlation are measures of J's (Judge's) sensitivity to individual differences. These measures reflect his ability to interpret expressive behavior, or his ability in differential diagnosis. These are the only processes included in present measures of social perception which depend on J's sensitivity to the particular O (Other). The reliability of measures of this variable process has not been encouraging. But those who wish to study "empathy" or "social sensitivity" as it has usually been conceptualized should extract these correlational components from their measures (Cronbach, 1955, p. 191).

The Forced-Choice Differential Accuracy (FCDACC) score derived from the measurement technique developed in the following section is a measure of the Judge's accuracy in predicting the measured discordance in two Others' attitudes. As such, it corresponds closely to Cronbach's "Differential Accuracy Correlation" component. It is by no means

intended to address itself to the "whole" empathic process, but does result, nevertheless, in a "global" score, psychologically meaningful as a measure of one kind of empathic sensitivity.

### 3.2. Description of the FCDACC Item

Whenever an attitude scale has been administered to two Others, every statement on the scale must elicit either *identical* or *non-identical* responses from these two Others. A forced-choice item may be constructed by matching a statement eliciting identical responses with a statement eliciting non-identical responses from the same two Others. A Judge could then be asked to identify which of the two statements elicited the non-identical response behavior from the two Others. Such a procedure was adopted in this research. The Judges were given the names of the two Others whose responses to the attitude scale had been used to prepare the forced-choice items. In addition, the Judges were instructed that for *one* of the two statements in each item the two named Others had responded in an *identical* manner. The other of the two statements had elicited some degree of dissimilarity in the responses of the two others. His task, then, was to identify the latter statement, i.e., the statement reflecting non-identical opinions on the part of the two named Others.<sup>1</sup> The order of the two statements matched for each forced-choice item was randomized with certain restrictions resulting in the presentation of the "correct" statement (statement eliciting non-identical responses) first on exactly one-half of the items.

A second task was required of the Judge by the forced-choice item format employed in this research. Once the Judge had identified the statement reflecting dissimilar opinions on the part of the two named Others, the Judge was asked to indicate which of the two named Others "most strongly agreed" with the statement. Although this second task was required of the Judges in the research undertaking, the results of

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<sup>1</sup>Alternatively, it would be possible to ask him to identify the statement reflecting *identical* opinions on the part of the two named Others. It is conceivable that this slight change in the instructions could result in a "prediction set" affecting his prediction accuracy in a different way than the "prediction set" employed under the former instructions. Such "prediction sets" and their possible influences are of academic interest only. It is most probable the Judge would try both approaches, no matter which instructions were given.

this phase of the Judges' prediction behavior were *not* analyzed nor will they be considered in any way in this dissertation. The reasons for this are somewhat complex, involving the presence of response sets and their influence on any "direction" score which might be obtained from the Judges' accuracies on this task. The investigator was unable to devise a methodologically sound scoring system for this second prediction task which would be free of artifactual components. Such biasing components would have rendered uninterpretable any analysis of these "direction scores."

A copy of the instructions provided the Judges has been included in Appendix D. An Individual Empathy Inventory prepared for one of the Judges in the study is also included in Appendix D. One of the items from this inventory might be examined at this point:

Item 3	(A) <u>Meck</u>	(B) <u>Rushing</u>	
	<i>My sales manager assigns first priority to problems brought to him by his salesmen</i>		<input type="checkbox"/>
	(A) _____	(B) _____	
	<i>My sales manager should consult me more often for my opinion or advice</i>		<input type="checkbox"/>

The two Others, Mr. Meck and Mr. Rushing, had each previously completed a Sales Attitude Questionnaire to be described in Chapter 7. Both individuals had responded "Agree" to the first statement in the item above. To the second statement, however, Mr. Meck had responded, "Strongly Agree," while Mr. Rushing had answered the statement with a response of "Strongly Disagree." Correct prediction behavior for the Judge asked to predict for Mr. Meck and Mr. Rushing would entail selection of the second statement as indicated by an "X" or check in the box following that statement. Such a judgment would have constituted an accurate prediction of discordance in the two Others' attitudes. (The Judge also attempted to predict which of the two Others responded "closest" to "Strongly Agree" on the statement he had checked. In this case he should have checked the space following the letter (A). As explained above, this thesis does not concern itself with this second prediction task.) Zero or one point was assigned to an inaccurate or accurate prediction, respectively, for any Judge on any one forced-choice item.



This procedure provided the basic psychological task for the Judges in the measurement approach examined in this thesis.

### 3.3. Description of Response Patterns to Attitude Statements

Consider two statements for which two Others have provided self-scores. Consider that for one of the two statements the two Others have given identical responses. Such a statement will hereafter be referred to as an *Identical Response* (IR) statement. Consider that the other of the two statements elicited a discrepancy or discordance in the opinions held by the two Others. A statement evoking dissimilar responses from two specified Others will hereafter be referred to as a *Non-Identical Response* (NIR) statement. If the response surface eliciting the responses of the two Others presents the following categories: "Strongly Disagree," "Disagree," "Agree," and "Strongly Agree," all possible arrangements or "patterns" of their responses can be anticipated and categorized. This has been done in Fig. 2. Two major categories ("Statement Categories" in the figure) delineate the possible response patterns into IR and NIR categories. Thus, two Others may be identified, from knowledge of the Statement Category, as having responded in an identical manner (IR pattern) to the statement or as *not* having responded in an identical manner (NIR pattern) to the statement.

The NIR Statement Category may be further delineated into subcategories ("Statement Subcategories" in the figure). This shall refer to the degree of difference exhibited by the two Others where an NIR pattern describes their response behavior. The largest possible difference in response occurs where the two Others respond "Strongly Disagree" and "Strongly Agree" to the statement. A statement evoking such a response pattern will be additionally identified (subcategorized within the NIR category) as a *Maximally Dissimilar Response* (MDR) statement.

Because of the infrequent appearance of this response behavior, two additional response patterns will also be classified in the same Statement Subcategory (MDR). The first is described by the difference exhibited where the two Others respond "Strongly Disagree" and "Agree." The second is described by the difference exhibited where the two Others respond "Disagree" and "Strongly Agree." The two response patterns just described actually reflect the same degree of measured discordance



Description of Response Arrangement		Possible Alternatives Provided for Others' Self-Description			
Statement Category	Statement Subcategory	"Strongly Disagree"	"Disagree"	"Agree"	"Strongly Agree"
IR	IR	O <sub>1</sub> and O <sub>2</sub>	O <sub>1</sub> and O <sub>2</sub>	O <sub>1</sub> and O <sub>2</sub>	O <sub>1</sub> and O <sub>2</sub>
IR	IR				
IR	IR				
IR	IR				
NIR	MDR	O <sub>1</sub> O <sub>2</sub> O <sub>1</sub> O <sub>2</sub>	O <sub>1</sub> O <sub>2</sub>	O <sub>2</sub> O <sub>1</sub>	O <sub>2</sub> O <sub>1</sub>
NIR	MDR				
NIR	MDR				
NIR	MDR				
NIR	MDR				
NIR	MDR				
NIR	DR	O <sub>1</sub> O <sub>2</sub>	O <sub>1</sub> O <sub>2</sub>	O <sub>2</sub> O <sub>1</sub>	O <sub>2</sub> O <sub>1</sub>
NIR	DR				
NIR	DR				
NIR	SR				
NIR	SR				
NIR	SR				

O<sub>1</sub> = Response of Other<sub>1</sub>  
 O<sub>2</sub> = Response of Other<sub>2</sub>  
 IR = Identical Response  
 NIR = Non-identical Response  
 MDR = Maximally Dissimilar Response  
 DR = Dissimilar Response  
 SR = Similar Response

Fig. 2. Possible patterns of the responses of two Others to an attitude statement.

in attitudes on the response surface, given certain assumptions about the psychological distances between response alternatives.<sup>2</sup>

A second subcategory of response pattern is described by the situation where the two Others respond "Disagree" and "Agree." Statements evoking such a response pattern from the two Others shall be designated as *Dissimilar Response* (DR) statements.

The final subcategory of NIR pattern describes the situation where (1) the two Others respond "Strongly Disagree" and "Disagree"; or (2) the two Others respond "Strongly Agree" and "Agree." Statements eliciting one of these two response patterns will be identified as *Similar Response* (SR) statements.

From the discussion of response patterns and the description of the forced-choice item format, the reader will recognize the possibility of manipulating experimentally the measured discordance (SR, DR, MDR patterns) in two Others' responses to the attitude statements. This was done in the research reported here. Three types of forced-choice items were prepared, MDR, DR, and SR items. The item was identified by the subcategory classification associated with the NIR statement matched with an IR statement in its preparation. Thus, the relative success of the Judges in their predictions on the three types of item was compared. In this way an empirical test of the sensitivity of the FCD-ACC approach was performed. It is recognized that failure of the Judges to perform with different levels of Accuracy for the three types of items would be equivocal. Such a failure could be interpreted as: (a) lack of empathy on the part of the Judges; (b) presence of empathy but failure of the measurement process; or (c) lack of empathy *and* failure of the

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<sup>2</sup>The assumptions concerning psychological distances between response alternatives on the response surface in question are:

$$|SD - D| = |SA - A| < |D - A|.$$

Under these assumptions the two response patterns discussed in the paragraph, when displayed in terms of distances, appear as:  $|SD - A|$  and  $|D - SA|$ , and may be shown to be equal. This particular rationale is not too important to the technique as a whole. The important subclassification boundaries lie between the MDR patterns (including the two just discussed), the DR patterns, and the SR patterns to be described in the subsequent paragraphs. It is recognized that the subcategories may overlap due to the inadequacy of the measurement process in its attempt to assess "true" underlying attitudinal difference existing between two Others. The technique does not assume that the subcategories (MDR-DR-SR) do *not* overlap with one another.

measurement process. On the other hand, successful differentiation of the three types of items by the Judges would be unequivocal. Statistically significant differences in Accuracy of prediction on the three types of items must be interpreted as *both* the presence of empathy on the part of the Judges *and* sensitivity of the measurement process to the Judges' empathic abilities. The expectation would be that Judges perform with highest Accuracy on the MDR items and with lowest Accuracy on SR items. Accuracy on DR items should fall somewhere between. The relationship need not be linear, but should be described by a regularly increasing monotonic sequence.

In summary, this chapter has outlined the basic mechanics of the Forced-Choice Differential Accuracy approach to the measurement of empathic ability. A discussion of the nature of the measure revealed it to be a "global" score, although psychologically meaningful and concerned with the "core" of the empathic process. The judgmental process required by the FCDACC approach involves the prediction of the measured discordance in the measured attitudes of two Others. A method of experimentally manipulating the degree of discordance in the two Others' attitudes was described.

## CHAPTER 4

# *RS-AS-ACC Effects and the FCDACC Measure*

In Chapter 2 the first criterion for use in the evaluation of a legitimate empathic measurement technique was identified as the freedom provided by the technique from meaningless artifactual "linkages" arising from the RS-AS-ACC interdependencies. It is believed the undesirable effects of these "linkages" are not present in the FCDACC measure. A detailed discussion of the way this is accomplished is the purpose of the present chapter.

### **4.1. RS-AS-ACC Relationships**

The Judge's prediction task on the forced-choice item outlined in the last chapter is to identify a difference of opinion existing between two Others on one of two statements. In doing so, it is logical to assume he would, consciously or otherwise, attempt to predict the specific responses of the two named Others on each of the two statements. Consider the relationships between: the Judge's self-descriptions on the two statements, *a*; the two Others' self-descriptions on the two statements, *b*; and the Judge's predictions of the two Others' self-descriptions on the two statements, *c*. The following argument, which becomes somewhat complicated, is based on a dichotomous response surface for the purpose of simplification. It can be shown that the use of a wider response

surface (as was done in this study) does not alter the logic in any way. We have, then, the pairing of statements for which responses have been obtained on only one of two possible alternatives, e.g., "Agree" and "Disagree." The following definitions are required:

$a_{IR}$  = the self-description of the Judge on the IR statement.

$a_{NIR}$  = the self-description of the Judge on the NIR statement.

$b_{IR_1}$  = the self-description of Other<sub>1</sub> on the IR statement.

$b_{NIR_1}$  = the self-description of Other<sub>1</sub> on the NIR statement.

$b_{IR_2}$  = the self-description of Other<sub>2</sub> on the IR statement.

$b_{NIR_2}$  = the self-description of Other<sub>2</sub> on the NIR statement.

$c_{IR_1}$  = the prediction by the Judge of  $b_{IR_1}$ .

$c_{NIR_1}$  = the prediction by the Judge of  $b_{NIR_1}$ .

$c_{IR_2}$  = the prediction by the Judge of  $b_{IR_2}$ .

$c_{NIR_2}$  = the prediction by the Judge of  $b_{NIR_2}$ .

*Restrictions:*

$$b_{IR_1} = b_{IR_2}; \quad \text{and} \quad b_{NIR_1} \neq b_{NIR_2}$$

*Possible RS-AS-ACC Relationships:*

Low Real Similarity: Judge differs from both Others on IR statement.

$$(1) \quad a_{IR} \neq b_{IR_1} = b_{IR_2}$$

Differential Real Similarity: Judge is similar to one Other on NIR statement.

$$a_{NIR} = b_{NIR_1} \neq b_{NIR_2}$$

or

$$(2) \quad a_{NIR} = b_{NIR_2} \neq b_{NIR_1}$$

High Real Similarity: Judge is similar to both Others on IR statement.

$$(3) \quad a_{IR} = b_{IR_1} = b_{IR_2}$$

Low Assumed Similarity: Judge's predictions of both Others' responses to either an IR or NIR statement differ from his own response to the statement.

$$(4) \quad a_{IR} \neq c_{IR_1} = c_{IR_2}$$

and

$$(4a) \quad a_{NIR} \neq c_{NIR_1} = c_{NIR_2}$$

Differential Assumed Similarity: Judge's prediction of the response of one Other to either an IR or NIR statement is identical with his own response to the statement.

$$a_{\text{NIR}} = c_{\text{NIR}_1} \neq c_{\text{NIR}_2}$$

or

$$(5) \quad a_{\text{NIR}} = c_{\text{NIR}_2} \neq c_{\text{NIR}_1}$$

and

$$a_{\text{IR}} = c_{\text{IR}_1} \neq c_{\text{IR}_2}$$

or

$$(5a) \quad a_{\text{IR}} = c_{\text{IR}_2} \neq c_{\text{IR}_1}$$

High Assumed Similarity: Judge's predictions of the responses of both Others on either an IR or NIR statement are identical with his own response to the statement.

$$(6) \quad a_{\text{IR}} = c_{\text{IR}_1} = c_{\text{IR}_2}$$

and

$$(6a) \quad a_{\text{NIR}} = c_{\text{NIR}_1} = c_{\text{NIR}_2}$$

Inaccuracy: Judge predicts the Others' responses are identical for the NIR statement.

$$(7) \quad c_{\text{IR}_1} \neq c_{\text{IR}_2} \quad \text{with} \quad c_{\text{NIR}_1} = c_{\text{NIR}_2}$$

Accuracy: Judge predicts the Others' responses are identical for the IR statement.

$$(8) \quad c_{\text{IR}_1} = c_{\text{IR}_2} \quad \text{with} \quad c_{\text{NIR}_1} \neq c_{\text{NIR}_2}$$

These RS-AS-ACC relationships are the only ones possible, under the restrictions. It should be noted that certain RS relationships cannot occur. The structure of the forced-choice item prevents the Judge from having either High or Low Real Similarity with the two Others on the NIR statement. For the same reason, the restrictions prevent him from having Differential Real Similarity with the two Others on the IR statement.

The Judge's RS with each of his Others is fixed prior to the prediction situation and cannot be altered. On this point Gage and Cronbach state:

When a Judge is predicting an Other, we may regard the real similarity or real dissimilarity of this pair on any item as fixed independently of any social perception of the Judge (Gage and Cronbach, 1955, p. 416).



Therefore, the only aspects of the RS-AS-ACC relationships which vary as a function of a Judge's predictions are AS and ACC. A restriction inherent in the forced-choice technique results from the forcing of the Judge to use Differential Assumed Similarity on *exactly* one-half of the statements. This is an important advantage of the technique, as the *degree* to which Judges *differentially assume similarity* with their Others is fixed and could not influence their Accuracies. On the *other* one-half of the statements, differences among the Judges in the number of statements on which they assume High or Low similarity with their Others will occur. Also, Judge-to-Judge and statement-to-statement differences in RS will occur. These differences in Judge-to-Judge RS-AS relationships should be examined to determine their influence, if any, on the FCDACC scores.

It is assumed, in the absence of any empathic sensitivity, that Judges are unable to identify the response pattern associated with any particular statement, i.e., the IR or NIR category to which the statement belongs. The manner in which the Judge assumes similarity with the two Others on the two statements comprising a forced-choice item determines his decision as to their IR or NIR classification. It will be recalled from Chapter 3 that the order of presentation of IR and NIR statements in the items was randomized with certain restrictions. This restricted randomization resulted in the presentation of the IR statement before the NIR statement on exactly one-half of the items. The Judge must differentially assume similarity on *only* one of the two statements in each item. The *order* in which he does this determines his Accuracy. The variables in the presentation are: (a) the degree of Real Similarity presented by the IR statement, as indicated by Eqs. (1) and (3) [Differential Real Similarity is always presented to the Judge by the NIR statement, as indicated by Eq. (2)]; and (b) the degree of Assumed Similarity (High or Low) used by the Judge in his predictions on the statement he believes to be the IR statement, as indicated by Eqs. (4), (4a), (6), and (6a). All Judges differentially assume similarity on the statement they believe to be the NIR statement, as indicated by Eqs. (5) and (5a).

All possible relationships between RS, AS, and ACC are presented in Table 1. To simplify the table, the actual order of presentation of the two statements in each item making up a "Combination" is always IR followed by NIR. Thus, in the third column, first row, the Judge

TABLE 1. ALL RS-AS-ACC RELATIONSHIPS BETWEEN A JUDGE AND TWO OTHERS ON A FORCED-CHOICE ITEM

Possible Combination of RS, AS, and ACC	Real Similarity Presented by the IR and NIR Statements	Degree of Assumed Similarity Used by Judge	Result of Prediction
<i>A</i>	LOW and DIFF Eq. (1) and Eq. (2)	LOW and DIFF Eq. (4) and Eq. (5)	Accuracy Eq. (8)
<i>B</i>	LOW and DIFF Eq. (1) and Eq. (2)	HIGH and DIFF Eq. (6) and Eq. (5)	Accuracy Eq. (8)
<i>C</i>	HIGH and DIFF Eq. (3) and Eq. (2)	LOW and DIFF Eq. (4) and Eq. (5)	Accuracy Eq. (8)
<i>D</i>	HIGH and DIFF Eq. (3) and Eq. (2)	HIGH and DIFF Eq. (6) and Eq. (5)	Accuracy Eq. (8)
<i>E</i>	LOW and DIFF Eq. (1) and Eq. (2)	DIFF and LOW Eq. (5a) and Eq. (4a)	Inaccuracy Eq. (7)
<i>F</i>	LOW and DIFF Eq. (1) and Eq. (2)	DIFF and HIGH Eq. (5a) and Eq. (6a)	Inaccuracy Eq. (7)
<i>G</i>	HIGH and DIFF Eq. (3) and Eq. (2)	DIFF and LOW Eq. (5a) and Eq. (4a)	Inaccuracy Eq. (7)
<i>H</i>	HIGH and DIFF Eq. (3) and Eq. (2)	DIFF and LOW Eq. (5a) and Eq. (6a)	Inaccuracy Eq. (7)

used Low Assumed Similarity with each of the two Others on the first appearing statement, while using Differential Assumed Similarity with the two Others on the second appearing statement. By so doing, he was Accurate in his predictions of the Others' responses. The two statements represent one forced-choice item (RS-AS-ACC combination A). Seven other possible combinations also are shown in the table.

It should be noted that no relationship exists between RS, AS, and ACC. *The Judge may obtain Accuracy under any combination of RS and AS conditions.* Accuracy depends only upon the correct identification of the NIR statement and is uninfluenced by the Real Similarity and High-Low assumed Similarity conditions. Thus, A and E, B and F, C and G, D and H are identical except for the Accuracy score. The RS relationships presented are identical, and the degree to which the Judge assumes similarity with the statement he *believes* to be the NIR statement is identical. Nevertheless, the Accuracy scores are *not* identical. Judges with any combination of RS-AS relationship may be scored as Accurate or Inaccurate.

In summary, an evaluation of the forced-choice approach has been carried out from the standpoint of RS-AS effects on the FCDACC scores resulting. The approach was shown to be free of the RS-AS-ACC interdependencies discussed in Chapter 2.

## CHAPTER 5

# *Response Sets and the FCDACC Measure*

This chapter discusses the control of response sets by the Forced-Choice Differential Accuracy measure. The response sets identified in Chapter 2, in addition to a number of possible response sets peculiar to the FCDACC approach, are discussed and the steps taken to control their influence on the FCDACC scores outlined.

### **5.1. Variability of Response to the Attitude Statements**

In their self-descriptions on the original attitude statements, the subjects (both Judges and Others) could be expected to show differences in their response variability. One type of response variability is related to the statement content and will be identified as variability associated with the "controversiality" of the particular statement. A second type of response variability is associated with Judge-to-Judge and Other-to-Other differences in response variability over the statements. If all variability originated with the statement content, the response variances over statements associated with each subject would be identical (within the limits of random sampling error for this statistic). On the other hand, if all variability originated with the response behavior of the subjects, the response variances over subjects associated with each statement would be identical. Both statement originating and subject

originating variability were controlled in this research. The latter source of variability is discussed under "atypicality" of response in subsequent sections of this chapter.

To point out more specifically the possible influence of an uncontrolled "controversiality" factor (statement originating variability) in the FCDACC measure, consider responses made by 318 salesmen to the following two statements:

1. The company often introduces new products too soon (or before they are ready).
2. The only way to use my time most profitably is to make many shorter (incomplete) calls, moving the well-established products.

The response variance over salesmen for the first statement is .719, where the responses, "Strongly Disagree," "Disagree," "Agree," and "Strongly Agree" are assigned the values 1, 2, 3, and 4, respectively. The response variance over salesmen for the second statement is only .288. The  $F$  ratio of the difference is 2.50, statistically significant beyond the .001 level of significance ( $F_{.001} = 2.40$ ;  $n_1 = 24$ ,  $n_2 = 120$ ).<sup>1</sup> Were the two statements to be matched in the forced-choice format, a Judge might be expected to select the first statement as the NIR statement in the absence of any empathic knowledge of the two Others' responses. The Judge would be predicting on the basis of the "controversiality" of the statements, it being assumed he (in this case a sales manager) would know something about the degree of response heterogeneity among salesmen in general on the two statements. If the items had been prepared in such a way that the NIR statements were most often the statements of high "controversiality," the Judge might be scored as highly accurate in his empathic knowledge of the two individuals for whom he is predicting. In fact, he would only be knowledgeable about the way in which large groups of salesmen behave toward the statements used in the forced-choice items. It must be admitted that the accuracy displayed in such a circumstance would be a form of "mass" empathy. We are interested, however, in "individual" empathy. For this reason, it was considered desirable to eliminate the effect of a "controversiality" response set on the FCDACC measure.

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<sup>1</sup>Degrees of freedom for the  $F$  test carried out were:  $n_1 = 317$ ,  $n_2 = 317$ . The degrees of freedom presented for  $F_{.001}$  were the closest tabled values available to the author.



Response variances for each statement were computed from self-descriptions supplied by 318 salesmen assigned to the sales managers (Judges) to be described in Chapter 7. The statements were then ranked according to the magnitude of their variances. A restriction was placed on the matching of statements to form forced-choice items as follows: statements were matched so that the IR statement variance exceeded the NIR statement variance in *exactly* one-half of the forced-choice items prepared for a Judge.

Under the restriction, prediction on the basis of statement "controversialities" would result in correct predictions for exactly one-half of the items. Such a result is exactly that expected from chance considerations alone in a forced-choice format. No "better than chance" interpretation of a Judge's Accuracy score could result. Thus, the influence of the Others' response variability associated with the "controversiality" of the statements was eliminated from the FCDACC measure evaluated in this research.

## 5.2. "Intensity" of Response to the Attitude Statements

Consider the following two attitude statements:

1. The job that the top executives are doing in this company is excellent.
2. The influence of the "old pros" on the younger salesmen is a most important factor in the profits of this division.

If the self-descriptions of the Judges are used to compute the mean responses for the two statements, the difference is

$$\bar{X}_1 - \bar{X}_2 = 3.733 - 2.600 = 1.133$$

(where the values assigned to the response categories are: "SD" = 1, "D" = 2, "A" = 3, "SA" = 4). A *t* test of the mean difference yields a *t* of 6.63, statistically significant beyond the .001 level of significance ( $t_{.001} = 3.551$ ;  $df = 40$ ).<sup>2</sup> The difference in the content of the two statements results in a significantly more favorable response to the first statement.

Another way of looking at the difference would be to say that the first

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<sup>2</sup>The degrees of freedom for the *t* test carried out were:

$$n_1 + n_2 = 29 + 29 = 58.$$



statement resulted in a much higher average "intensity" of response. The value 2.5 is that value which falls directly between the response categories "Agree" and "Disagree" and could be considered as equivalent to "undecided." If the absolute difference between the Judges' mean response to each statement and the value 2.5 were computed, the resulting quantities could be ranked in the order of their magnitudes. The rankings would reflect the "intensity" of response associated with the statements but would have *no* connotation of "favorableness" or "unfavorableness" of response. The reason for doing this would be to control the matching of statements so as to eliminate the possibility of a Judge's being scored as empathic when he might actually be predicting simply on the basis of the "intensity" of response associated with the statements.

A Judge, in the absence of knowledge about his two Others, might reason that NIR patterns would be more probable where his "intensity" of feeling about the statement is very low. He would be correct, because statements toward which Judges tend toward neutrality (and low intensity) do produce a much higher frequency of NIR patterns among the Others than statements toward which Judges hold "intense" favorable or unfavorable attitudes.

If items were prepared in such a way that the NIR statements were most often the statements with a low "intensity" value, a Judge predicting solely on the "intensity" properties of the statements would have high Accuracy. Such a result would tell us nothing about the Judge's sensitivity to the two Others whose attitudes he is predicting. Consequently, in the FCDACC measure here evaluated, the preparation of items was accomplished in such a way as to alternate the "intensity" ranks of the IR and NIR statements over the items. One-half of the items possessed NIR statements with higher "intensity" ranks than the IR statements with which they were matched, and the other one-half of the items possessed IR statements with higher "intensity" ranks than the NIR statements with which they were matched. As a result of this restriction in the preparation of items, a Judge predicting solely on the basis of statement "intensity" would correctly predict on exactly one-half of the items. Such a result would be expected from chance considerations alone on the forced-choice format used, and no "better than chance" interpretation of his Accuracy would be possible.

### 5.3. Atypical Responses of the Judge to the Attitude Statements

Peculiarities on the part of the Judge in his own self-descriptions on the two statements making up a forced-choice item could, conceivably, influence his prediction behavior on the item. For example, if a Judge holds an unfavorable attitude toward one of the statements in the item, he might reason that the probabilities of at least one of the Others also holding an unfavorable attitude would be increased. In fact, his reasoning would be correct. In reasoning this way, however, he would be predicting the probability of an NIR pattern on the basis of his own responses to the statements. The prediction behavior would be determined by the Judge's self-descriptions rather than the Others' self-descriptions.

For these reasons, it was considered desirable to match the statements in such a way that the Judge's self-descriptions on the two statements would be identical. The following self-descriptions for a Judge (or an Other) were possible:

- i. *Strongly Agree*, where the response was *favorable*.
- ii. *Agree*, where the response was *favorable*.
- iii. *Disagree*, where the response was *favorable*.
- iv. *Strongly Disagree*, where the response was *favorable*.
- v. *Strongly Agree*, where the response was *unfavorable*.
- vi. *Agree*, where the response was *unfavorable*.
- vii. *Disagree*, where the response was *unfavorable*.
- viii. *Strongly Disagree*, where the response was *unfavorable*.

In the preparation of the forced-choice items, the matching of NIR with IR statements was restricted to matchings within each of the Roman numeral designations above, i.e., no two statements could be matched which had not elicited the same Roman numeral designation or classification for the Judge's self-description on the two statements.

### 5.4. Atypical Relationships Between the Two Others

Reference to Table 1 in Chapter 3 reveals at least two possible arrangements of the two Others *within* the same MDR, DR, or SR pattern. Consider the possibility of the two Others being extremely divergent in their *overall* attitudes. Assume, for example, Other<sub>1</sub> to be very "satis-

fied" and favorable in the majority of his attitudes, while Other<sub>2</sub> is "unsatisfied" and unfavorable in the majority of his attitudes. Other<sub>1</sub> will be identified as the *Positive* Other, and Other<sub>2</sub> will be identified as the *Negative* Other. It might further be assumed that the Judge is acutely aware of this overall difference between the two Others. Quite obviously a large majority, if not all, of the NIR statements resulting from the self-descriptions of these two Others would be characterized by a favorable response on the part of the Positive Other and a less favorable response (SR pattern) or unfavorable response (MDR or DR pattern) on the part of the Negative Other.

It is possible, however, for an NIR statement to result which would be characterized by an unfavorable response on the part of the Positive Other and a favorable response on the part of the Negative Other. Statements reversing the typical response habits of the two Others, as just described, will be identified as Reverse NIR statements. To summarize, a Reverse NIR statement is a statement upon which the Positive Other is unfavorable while the Negative Other is favorable.<sup>3</sup>

The use of Reverse NIR statements in the FCDACC approach does not introduce any *spurious* effect on the Accuracy. Nevertheless, it may be argued that the use of Reverse NIR statements increases the difficulty of prediction for the Judge. Empirical evidence would have to be obtained to determine the relative difficulty of forced-choice items employing Reverse NIR statements and items employing "unreversed" NIR statements. In the absence of such evidence, it was considered desirable to control this possible influence on the FCDACC measure investigated in this thesis. Consequently, the following restriction was followed in the preparation of the forced-choice items:

1. The two Others whose responses were being used to prepare items were identified as Negative and Positive on the basis of their total number of unfavorable responses to the attitude statements.
2. Reverse NIR statements were eliminated from the eligible NIR statements to be matched with IR statements in the preparation of forced-choice items.

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<sup>3</sup>Note that for SR patterns, the Negative Other need only respond *more* favorably than the Positive Other, though *both* Others respond favorably. Again, an SR pattern may result from a *more* unfavorable response by the Positive Other than by the Negative Other, though *both* respond unfavorably.

### **5.5. Control of Unidentified Response Sets**

Response sets identified as "controversiality," "intensity," "atypicality" of the Judge's response, and "atypicality" of the Other's response behavior have been discussed, and their control by the FCDACC approach has been outlined. It is possible that response sets exist which are not controlled by the FCDACC measure, as it was applied in this study. It must be realized, however, that the measure of control discussed in this chapter is rather severe. Some control over unidentified response sets may have been accomplished "unwittingly" by the exacting controls outlined. A further check on the control of unidentified response sets may be obtained from the results of the analysis of variance employed in the empirical try-out of the FCDACC approach. An unidentified response set may influence Accuracy of prediction in unknown ways; however, the influence must have consistency in its effect. The experimental design used in the application of the FCDACC approach (to be discussed in a subsequent chapter) must be expected to exercise a measure of control through randomization, as do most designs. Further, the interpretation of significant main effects and interactions as the result of uncontrolled response sets must make psychological or methodological sense. In Chapter 8, reporting results of the application of the FCDACC approach to the measurement of empathic ability, additional reference to the possibility of uncontrolled response set influences is presented.

### **5.6. Summary Discussion of FCDACC Control of Response Sets**

In Chapter 2, a criterion for the evaluation of a legitimate measure of empathic ability was stated to be the control exercised by the measure over various response sets. The response sets identified were, in some cases, peculiar to the measurement approach utilized by the investigator. Nevertheless, a number of response sets were identified as existing almost universally in measures of social perception. Of major importance were the response sets associated with the variability of response and prediction characteristic of the particular Judges and Others. These response sets were discussed under the sections on "controversiality" of the statements, and "atypicality" of response of the Judges. Their control by the FCDACC approach was outlined. Additional response sets were identified and their control discussed.



## CHAPTER 6

# *Chance Success and the FCDACC Measure*

In Chapter II the third methodological criterion desirable for the evaluation of a satisfactory measure of empathic ability was stated as follows: the provision of a capability for assessing "better than chance" Accuracy without recourse to correlations with "outside" criteria. This chapter discusses the method of determining "chance" prediction behavior with the FCDACC approach to empathic measurement. It can be shown that the approach is ideally suited to comparisons with "chance," both from the standpoint of identifying individual Judges who display exceptional prediction skills, and from the standpoint of identifying significantly better than chance prediction behavior on the part of the entire group of Judges.

### **6.1. Definition of Chance Accuracy**

The forced-choice item used in the FCDACC approach presents the Judge with an IR and an NIR statement. The Judge's task is to identify one of the two statements as the NIR statement. If all of the response sets outlined in Chapter 5 have been effectively controlled, and the RS-AS effects upon his decision are neutral, the only remaining way for the Judge to obtain Accuracy in his selection of the NIR statement is: (1) by correctly *guessing* in the absence of empathic knowledge; or, (2) by correctly predicting on the basis of empathic knowledge of the Others' responses.

In the absence of any empathic knowledge of the Others for whom he is predicting, the Judge must guess on each of the items. It is a simple matter to describe the expected result of such guessing behavior. Expansion of the binomial expression,  $(p + q)^k$ , provides the distribution of probabilities associated with each possible score. In the binomium,  $p$  equals the probability of a correct guess on any one item; the number of items attempted is denoted by  $k$ ; and,  $q = (1 - p)$ . The following descriptive statistics will characterize the positive binomial distribution resulting:

$$pk = \text{Mean of scores}$$

$$kpq = \text{Variance of scores}$$

$$\sqrt{kpq} = \text{Standard Deviation of scores}$$

## 6.2. Determination of Better than Chance Group Behavior

By expanding the binomial expression, the probability of a Judge's earning any score from zero to  $k$  may be determined. The probabilities associated with each of the possible scores may then be multiplied by the number of Judges taking the test. The resulting products signify the number of Judges expected to obtain each of the possible scores. In this way the distribution of expected frequencies for the scores of  $n$  Judges, each "guessing" on  $k$  items, can be expressed. From this distribution of expected frequencies, a distribution of cumulative frequencies may be obtained. The *actual* scores resulting from the administration of the  $k$  items to each of the  $n$  Judges may then also be placed in a cumulative distribution. The Kolmogorov-Smirnov (Smirnov, 1948) test of the difference between the two distributions may be applied to determine the statistical significance of the departure of the cumulative distribution of actual scores from the cumulative distribution of theoretical scores derived from probability statistics.

## 6.3. Determination of "Better than Chance" Prediction Accuracy for an Individual Judge

Once  $n$  Judges have made judgments on the forced-choice items, the identification of those Judges predicting with better than chance accuracy may be desirable. The probabilities associated with the various



scores, as calculated from the binomial expression, are not the correct probabilities for a score "selected" from a group of scores.

The desired probability is the probability of *one or more* Judges attaining the score in question, *or higher*, by chance alone. To solve the problem, the cumulative probability associated with the score in question, say score  $X$ , must be found by the expansion of the original binomial expression followed by the summation of the probabilities associated with the score  $X$  and all scores higher than  $X$ . Use may then be made of the "binomial law," with  $p'$  equal to the cumulative probability obtained above. The expression for the "binomial law" is as follows:

$$p_{n,t} = \frac{n!}{t!(n-t)!} p'^t q'^{n-t} \quad (\text{Johnson, 1949, p. 26})$$

In the expression,  $n$  = the number of Judges,  $t$  = zero,  $p'$  = the new probability obtained above, and  $q' = 1 - p'$ . The result of this computation will give the probability  $p$  of zero Judges attaining the score  $X$  or a score higher than  $X$ . To obtain the probability of *one or more* Judges attaining a score of  $X$  or higher, the value of  $P$  must be subtracted from one.

If this procedure is used, it is possible to administer the test to a number of Judges and determine, *after* the administration, whether the Judge obtaining the highest score has performed with better than chance accuracy in his predictions. If the probability  $(1 - P)$  is less than .01, the Judge may be said to have achieved a level of accuracy attainable by chance alone less than one time in 100.

#### 6.4. Better than Chance Determination with Analysis of Variance

If a number of Judges take a test consisting of forced-choice items, and the "true" probability of any Judge predicting accurately on any one forced-choice item is .50, no manner of analyzing the variances of the Judges' predictions will produce statistical significance with any greater frequency than would be expected from "errors of the first kind" (the error of rejecting the null hypothesis when, in fact, the null hypothesis is true).

In the present study, the FCDACC scores have been analyzed by analysis of variance. A number of treatment factors and their interactions have been tested by the  $F$  test. If, in fact, chance alone has determined every Judge's prediction accuracy on every forced-choice item, none of the

$F$  tests carried out in the ANOVA should be significant. On the other hand, *any*  $F$  test attaining significance is evidence that *chance alone* is *not* a sufficient explanation for the prediction behavior investigated in the analysis. If the existence of response sets and RS-AS influence on the FCDACC scores may be dismissed, *any* interpretation of a statistically significant  $F$  test must involve the presence of better than chance prediction behavior, in short—empathy.

One further comment on the analysis might be made. If no such ability as empathy existed for the Judges, and all possible response sets or other spurious influences on the FCDACC scores had been eliminated from the prediction behavior of the Judges, their predictions would have been guesses. The accuracy of such guessing behavior would have been governed strictly by the laws of chance. The expected variance of such chance behavior, derived from binomial probability statistics, would be  $pq$ , where  $p$  equals the probability of a correct guess, and  $q = (1 - p)$ . In the forced-choice item the probability of a correct guess is .50; therefore,  $pq$  would equal .25. All mean squares in the analysis of variance, then, would be estimates of this parameter value, as, theoretically, all “expected mean squares” may be shown to equal  $pq$ . If *any observed* mean square in the analysis of variance should depart from .25 to an extent greater than might be expected from the sample fluctuations of these estimates alone, the hypothesis of chance guessing behavior on the part of the Judges could be rejected.

### 6.5. Better than Chance Hypothesis<sup>1</sup>

In the succeeding chapters an application of the FCDACC approach to the measurement of empathic accuracy is reported. Although the application has not, as yet, been discussed in this dissertation, the nature of the material presented in this chapter prompts the writer to formulate the first research hypothesis examined in the study reported. This is done because the statistical techniques reviewed in this chapter

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<sup>1</sup>The term “general hypothesis” or “hypothesis” (without modifier) is used in this dissertation to refer to “working” or “research” hypotheses. General hypotheses are usually not formulated in such a way as to be testable with statistical procedures without first being translated into “statistical” hypotheses, e.g., a “null” hypothesis.

are used to test this hypothesis when translated into its "null" form. The general hypothesis follows:

**General Hypothesis I:** The Judges' (managers') empathic accuracy, as measured with the FCDACC approach, will exceed a level of accuracy expected on the basis of chance alone.

In summary, the criterion required an empathic sensitivity measure to provide a capability for determining better than chance accuracy without recourse to correlations with "outside" criterion variables, was applied to the FCDACC measure. Procedures for determining better than chance behavior either for a group of Judges or for an individual Judge were outlined. In addition, the interpretation of better than chance empathic accuracy based on *any* statistically significant *F* test in the analysis of variance was discussed. Finally, General Hypothesis I was formulated.

## CHAPTER 7

# *Design and Procedures*

The four major objectives of this thesis were: (a) to develop a methodologically sound approach to the measurement of empathic accuracy; (b) to investigate the feasibility of the approach in a research application; (c) to attempt to provide a legitimate demonstration of empathy devoid of statistical artifact and methodological error; and (d) to investigate the practical validity of the empathy measure developed. Chapters 3, 4, 5, and 6 were concerned with the first objective. This chapter presents the design of a study carried out in an industrial setting with the FCDACC measure of empathy. The study was designed to provide an evaluation of objectives (b), (c), and (d).

### **7.1. Outside Criteria of Empathic Accuracy<sup>1</sup>**

Any study attempting to evaluate an approach to empathic measurement should be carried out in a setting in which empathic sensitivity is

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<sup>1</sup>The outside criterion variables discussed in this chapter should not be confused with the methodological (rational-procedural) criteria used to evaluate the FCDACC measure in the preceding chapters. A methodologically sound measure may have no "practical" validity whatever, even though it accurately measures what it is supposed to measure. The three outside criterion variables used in the evaluation of the FCDACC measure will provide an evaluation of the practical validity of the FCDACC measure, in addition to evaluating the measure with respect to "meaningful constructs" generated by social perception theory.

believed to bear consequences in the day-to-day effectiveness of the Judge in his interpersonal relationships with his Others. The establishment of practical validity should entail more than an evaluation of the size of statistically significant differences. The application of an empathy measure with practical validity should imply assessment for better utilization of human talents and skills, improvement of "human relations," decreases in training time and costs, or, improvement in the validity of selection procedures for some occupational, managerial, or professional group. For these reasons, it was believed the FCDACC measure of empathic sensitivity developed in this research could not be well evaluated from the standpoint of practical significance with, for example, college sophomores. Consequently, the relationships between managers and their subordinates in a large corporation were selected for investigation.

Three outside criteria were selected for differentiation by the FCDACC measure. The first criterion concerned the "human relations" skills possessed by the Judges as evaluated by the Judges' immediate superiors. The criterion was called *Human Relations Skills*. It is believed the criterion is meaningfully related to the body of interpersonal perception theory. Investigators (Bellows, 1959; McMurry, 1953; Fiedler, 1958, pp. 243-257) have generally agreed that individuals who are superior in "human relations," in their "ability to get along with people," and in the effectiveness of their interpersonal relationships, should be more empathic than individuals who are inferior in these social skills.

The second and third outside criterion variables were suggested by Gage and Cronbach (1955) in their review of empathy research. In their review, Gage and Cronbach stated:

Understanding another person may be regarded as having two stages, which suggest two continua for classifying investigations. First, the Judge must take in information, perhaps by observing the Other, or perhaps by dealing with him over a period of time; the first continuum therefore deals with the *degree of acquaintance* of the Judge with the Other. Second, the Judge must interpret the information in order to arrive at predictive statements; the second continuum therefore deals with the *degree of extrapolation* or inference required between Input



and Outtake.<sup>2</sup> An experiment may be designed to make great demands on the intake process (little acquaintance) or the interpretive process (much extrapolation), or both, or neither (Gage and Cronbach, 1955, pp. 412-413, *italics theirs*).

The footnote referred to in the quotation above should also be quoted here:

<sup>2</sup>Meehl (17, pp. 68-71) has used a parallel distinction in identifying two possible applications of the phrase "clinical intuition": (a) to the situation in which the clinician cannot be articulate about the *evidence* for his diagnosis; (b) to that in which the clinician cannot "show in what manner a particular hypothesis was *arrived at* from the stated evidence." These two aspects of intuition, namely, "*evidence*" and "*manner of arriving at,*" seem to resemble our "*acquaintance*" and "*extrapolation,*" respectively. With a high degree of acquaintance the Judge would have a great deal of evidence, and a high degree of extrapolation would require what Meehl calls "the creative act of hypothesis-formation" (Gage and Cronbach, 1955, pp. 412-413, *italics theirs*).

The second and third outside criteria for differentiation by the FCDACC measure of empathy were *Degree of Acquaintance* and *Degree of Extrapolation*, respectively. The three criteria, Human Relations Skills, Degree of Acquaintance, and Degree of Extrapolation, were represented in the experimental design as treatment factors each with two or more levels, and the analysis of variance was employed as a method of evaluating the sensitivity of the FCDACC measure to the different treatment levels.

## 7.2. The Subjects

Sales managers and their subordinates were chosen as Judges and Others, respectively, in this investigation of empathy for the following reasons:

1. Empathy is believed to have significance for salesmen, as selling involves verbal, persuasive and social skills. Successful salesmen may be described as individuals with the ability to create rewarding interpersonal relationships with their customers. Sales managers are usually selected from successful salesmen.

2. The relationship between sales managers and their salesmen must, by the nature of the work, be a highly verbal one. This would seem to increase the opportunities for this particular type of manager (as com-

pared with, for example, production managers) to observe the attitudes of their subordinates.

Minnesota Mining and Manufacturing Company (3M) possesses a national sales organization of over fourteen hundred salesmen. The corporation is best described by a diversification of products organized around a number of self-managing, almost autonomous, divisions. These characteristics, along with a willingness to cooperate on the part of ten divisional sales managers, provided the investigator with an excellent research setting. Over 2,500 different products are marketed by the ten divisions represented in the study. The 318 salesmen in the sample presented a wide range of formal education. Some had only high school training or less (e.g., some of the salesmen handling sandpaper and Scotch Brand tape); others were graduate engineers (e.g., those selling magnetic tape to computer manufacturers). These salesmen deal with customers at all levels in a hierarchy ranging from small retail outlets and jobber-wholesalers to purchasing agents for giant corporations, state and federal government agencies, etc. Door-to-door salesmen are not represented in the 3M sales force, however.

***Selection of the Judges.*** Ten of the divisions in 3M were sufficiently large to warrant their inclusion in the sample. The divisional sales manager of each of these divisions was requested to cooperate in the study. In each case cooperation was obtained by the writer. Each of these divisional sales managers is responsible for a number of branch sales managers who in turn supervise a number of salesmen. The number of branch sales managers reporting to a divisional sales manager varies from six in the smallest division to over thirty in the largest divisions. A personal interview with each divisional sales manager was arranged, and the research explained in some detail. During this interview each divisional sales manager was asked to consider the branch sales managers assigned to him from the standpoint of their "ability to get along with their sales subordinates." Human relations skills, in general, were discussed, and each divisional sales manager was then asked to select the branch sales manager "most successful in his interpersonal relationships with his sales subordinates." The elimination of "total effectiveness" or "productivity" as one of the selection criteria was stressed. No written instructions were used by the investigator. The interviews lasted from fifteen or twenty minutes to over an hour in duration.

The following quotations are provided to give the reader some idea of the evidence extended by the divisional sales managers to justify their selections: "The men love him." "They would do anything for him." "I have never had a complaint from any of his salesmen." "The men go out of their way to 'knock themselves out' for him." Branch sales managers so selected were called *High Human Relations* managers (High HR managers).

Following the selection of the High HR managers, each divisional sales manager was then asked to select the branch sales manager "lowest" in these same characteristics. Such selections were called *Low Human Relations* managers (Low HR managers).

Some of the quotations marshalled as evidence to justify these selections are given: "He is really a cold turkey." "His men are always writing letters to me about their problems with him." "He has a thick skin where subordinates' personal problems are concerned." "He has 'people trouble.'"

The elimination of "total effectiveness" as a criterion in the selections was probably not entirely successful. One divisional sales manager did state that any "overall effectiveness" rating of the two branch managers selected by him would exactly reverse their positions, but this must be considered as an exception. Some of the divisional sales managers felt the human relations skills so important that a manager's overall effectiveness was largely determined by these skills. The "halo" effect must be considered to have operated fairly strongly. Aside from the exception mentioned, most divisional sales managers felt their High HR manager was very close to their most effective manager. On the other hand, they often indicated their Low HR manager was *also* fairly high from the standpoint of total effectiveness.

The selection of managers at the ends of the distribution of managers would, to some extent, compensate for the possible lack of reliability of the divisional sales managers' rankings of their branch sales managers on the human relations criterion. Arbitrarily, it was decided the "ends" would be defined as the upper and lower Quartiles in a division. At least 50 per cent of the branch managers in each division, then, would be ranked between the High HR manager and the Low HR manager. Consequently, in the case of divisions with over eight branch managers, two High HR managers and two Low HR managers were selected by the divisional sales manager. Five divisions, each with less than eight branch

managers, produced five High and five Low HR managers; five divisions, each with over eight branch managers, produced ten High and ten Low HR managers. The two groups of managers (15 High and 15 Low) provided two treatment levels for the first outside criterion variable, Human Relations Skills. The following hypothesis was formulated regarding these two groups of managers:

**General Hypothesis II.** High HR managers possess greater empathic ability than Low HR managers.

**The Sales Attitude Questionnaire.** Once the branch managers (Judges) had been selected, it was necessary to select the Others from among their subordinates. This was done partly on the basis of rankings by the managers and partly on the basis of the overall attitudes expressed by the Others. It is necessary, therefore, to discuss the instrument used to measure the attitudes of the salesmen before turning to the selection of the Others.

If the empathy measure was to be meaningfully evaluated in a managerial setting, it was believed the "attitudes to be predicted" should be job-related. For this reason, salesmen, technical service representatives, product managers, and divisional sales managers from eight of the ten divisions (two divisions were contacted too late to participate) were asked to prepare attitude statements. They were asked to contribute statements on attitudes possessed by salesmen in relation to their products, fellow salesmen, customers, training, sales manager, divisional management, company management, and sales work in general. Two characteristics of the "ideal" statement were discussed: (a) the statement should differentiate salesmen in their attitudes (responses to the statement); and (b) the statement should concern attitudes a sales manager would normally try to estimate in his everyday managerial functions. Only statements applicable to all ten 3M divisions were retained in the statement pool so developed. The ten divisional sales managers were then asked to go over the pool and eliminate statements they would rather not have presented to the salesmen. The elimination reduced the pool to 73 statements.

Forty-nine of the 73 statements appeared to have an obviously "favorable" response direction from their content. For example: "My sales manager is fair in rating me." These 49 statements were classified



as *Scorable* statements. Twenty-four statements had *no* obviously "favorable" response direction as, for example, "Salesmen are made, not born." These statements were classified as *Unscorable* statements. All 73 statements were randomized and reproduced as the Sales Attitude Questionnaire. The questionnaire was mailed to the homes of each of the 30 branch sales managers and their salesmen. Appendix A contains the questionnaire materials and letters requesting cooperation from the sales personnel falling into the sample. Through follow-up letters and telegrams, 348 questionnaires (including those returned by the branch managers) were returned out of a total of 352 questionnaires mailed out. Table 2 presents information on the sample.

It would seem necessary to discuss the incentives used to secure the high percentage of returns received. Each respondent (branch sales managers as well as the salesmen) was promised a personal report of the Findings (see Appendices A and C), and confidentiality of response was guaranteed. Each of the questionnaires was numbered on the cover page. The salesmen were informed this was to identify those failing to return their questionnaire for follow-up purposes only. Each salesman was told he could remove the cover page and return the questionnaire anonymously if he wished; however, a return of the questionnaire anonymously would result in follow-up letters which he should then ignore. In the preparation of the questionnaires a system of coding consisting of small dots hidden under the staples on the back sides of the pages was used. In this way every questionnaire was identified.

***Selection of the Others.*** About the same time the questionnaires were mailed out, a ranking form was mailed to the branch sales managers. This form, including the instructions accompanying it, is shown in Appendix B. Each of the branch sales managers was asked to rank his sales subordinates on the basis of "how well he knew them." The instructions stated in part, "If you were to be asked to *predict* the opinions that each of these salesmen gave as answers to the questionnaire, you would probably be more confident about predicting for certain of the salesmen than for others." He was then asked to rank the salesmen assigned to him on the basis of the "confidence" he would have in predicting for them. He was also asked to supply information on the length of time he had known and length of time he had supervised each of the subordinates listed.



TABLE 2. BREAKDOWN OF SALES ATTITUDE QUESTIONNAIRE RETURNS BY BRANCH

Branch No.	No. of Salesmen Assigned	No. Returning Questionnaire	Reason for Failure to Return Questionnaire
1	7	7	
2	7	7	
3	7	7	
4	11	11	
5	10	9	Employed only one month
6	8	8	
7	6	6	
8	6	6	
9	7	7	
10	7	7	
11	6	6	
12	6	6	
13	10	10	
14	8	8	
15	12	12	
16	8	8	
17	11	11	
18	7	7	
19	14	14	
20	11	10	Refused to participate
21	10	10	
22	9	9	
23	11	11	
24	15	15	
25	13	13	
26	16	16	
27	22	22	
28	21	20	Refused to participate
29	12	11	Employed only one month
30	24	24	
Total	322	318	

Three pairs of subordinates were selected from the salesmen assigned to each of the branch sales managers. The first two ranked subordinates were selected as the manager's *Attitude-Predictable* subordinates (AP subordinates). No minimum period of supervision was necessary for a salesman to qualify as one of the AP subordinates.

The two subordinates receiving the two lowest ranks were selected as the manager's *Attitude-Unpredictable* (AU subordinates). However,

to be eligible for selection as one of the AU subordinates, the salesman must have been supervised for a period of at least one year.<sup>2</sup> This was stipulated to insure some minimal level of "acquaintanceship" with the subordinates.

A third pair of sales subordinates was selected with the following procedures carried out on the Sales Attitude Questionnaire returns: The 49 Scorable statements were considered. One point was given if a salesman responded in the unfavorable direction on a statement, regardless of the "strength" of the response. The points were then summed over the statements. Each salesman's total was labeled his *Dissatisfaction Score*.

Figure 3 presents the distribution of these scores for the 318 salesmen in the sample. The third pair of subordinates was then selected under the following rules:

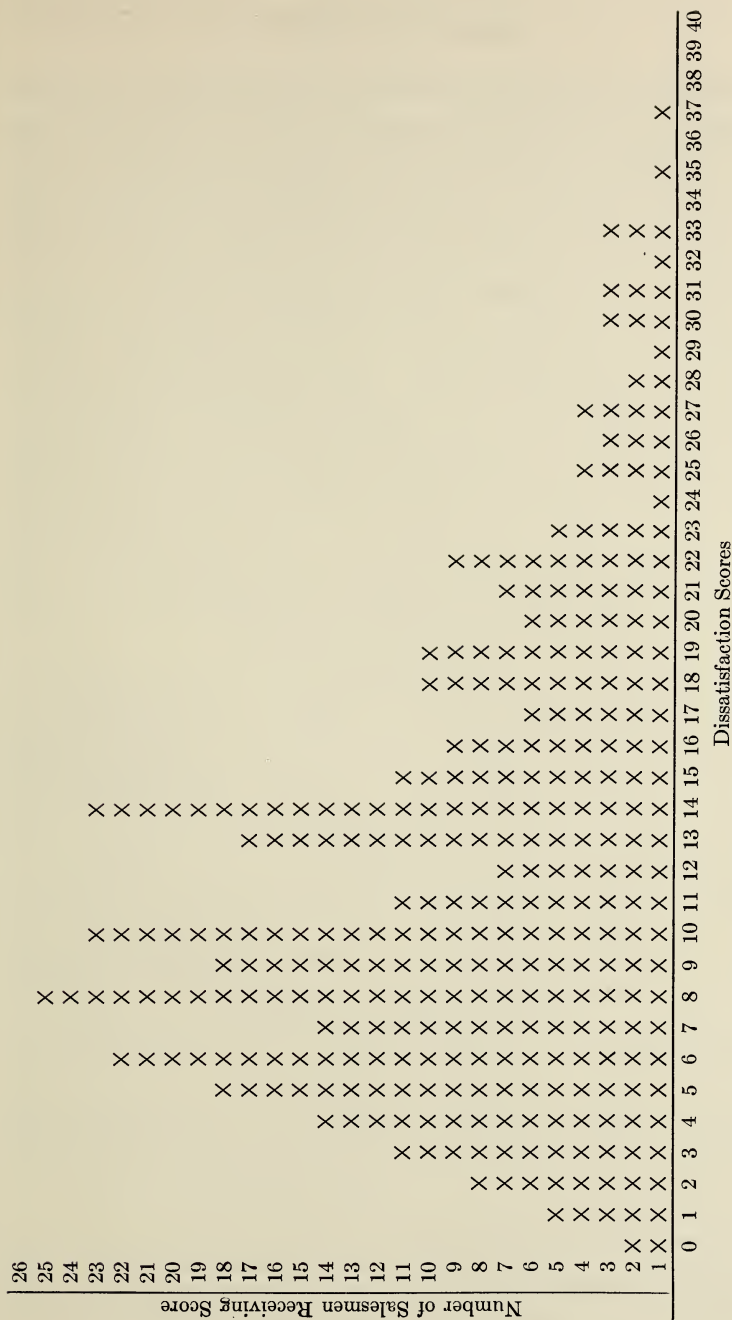
1. The salesman receiving the *highest* Dissatisfaction Score in each branch was given first priority as the Negative member of the pair.
2. The salesman receiving the *lowest* Dissatisfaction Score in the branch was given first priority as the Positive member of the pair.
3. To be eligible for selection, a salesman must have been supervised by the branch sales manager at least one year.
4. Ineligible salesmen on the basis of 3 were replaced by salesmen having the next highest or next lowest Dissatisfaction Score, and so on.

The two subordinates selected in each branch were identified as the *Attitude-Divergent* subordinates (AD subordinates).

For every pair of subordinates (AP, AD, AU) one member of the pair was identified as the *Positive* member, while the other member was identified as the *Negative* member. This was done by comparing the Dissatisfaction Scores received by the two members of a pair. The member with the lowest score was classified as Positive; the member with the highest score was classified as Negative. A discussion of the reason for classifying members of the pairs as Positive and Negative was given in Chapter 4.

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<sup>2</sup>Of 60 AU subordinates selected, six had been supervised for only nine months at the time the ranking was performed. However, as the empathy phase of the research did not take place until three months later, all empathic predictions by managers toward AU subordinates were directed toward salesmen who had been supervised at least one year.



**Fig. 3.** Distribution of Dissatisfaction Scores for 318 salesmen

Reference to Table 3 will provide the reader with relevant information about the subordinate pairs selected for the 30 branch sales managers. It should be understood by the reader that overlapping membership occurred. A member of an AD subordinate pair may have been previously selected as a member of one of the other two pairs. In eight branches an AP subordinate was also an AD subordinate. In five branches an AU subordinate was also an AD subordinate. In six branches the AD subordinate pair consisted of one member of the AP subordinate pair and one member of the AU subordinate pair. If only four salesmen assigned to a particular sales manager had been supervised a sufficient period of time to be eligible (this was the minimum encountered), obviously the AD subordinates had to be selected from members of the other two pairs. In *no* case did membership in the AP subordinate pair overlap with membership in the AU subordinate pair. Also, *no* overlap of the AD subordinate pair with one of the other two pairs was complete, i.e., no AD subordinate pair was identical to an AP or AU subordinate pair. Nevertheless, some amount of overlap existed for 19 of the thirty AD subordinate pairs selected.

Considering the mean "Acquaintance Ranks" (Table 3) associated with the three subordinate pair types, three treatment levels of the second outside criterion variable, Degree of Acquaintance, may be seen to exist. AP subordinates present the highest, AD subordinates a moderate, and AU subordinates the lowest acquaintanceship with their sales manager. If empathy is a simple function of the Degree of Acquaintance between a Judge and his Others, the sales managers should be able to predict the attitudes of their AP subordinates most accurately and the attitudes of their AU subordinates least accurately. Accuracy of the managers' predictions of attitudes of AD subordinates should fall somewhere in between. The following hypothesis was formulated, then, to investigate the Degree of Acquaintance criterion:

**General Hypothesis III.** Managers have greater empathy for subordinates with whom they feel closely acquainted than for subordinates with whom they feel less closely acquainted.

### 7.3. Degree of Extrapolation

The third outside criterion variable, Degree of Extrapolation, was manipulated in the design by presenting a Judge with different degrees

of measured discordance in two Others' attitudes. It will be recalled from Chapter 3 (see Table 1) that three categories of Non-Identical Response (NIR) pattern were identified. The three patterns, Similar Response (SR), Dissimilar Response (DR), and Maximally Dissimilar Response (MDR), described all possible degrees of measured discordance in two Others' attitudes. In the construction of forced-choice items a statement eliciting one of the three NIR patterns was matched with a statement eliciting an Identical Response (IR) pattern. An equal number of forced-choice items were constructed from each of the three categories of NIR statements, SR, DR, and MDR. Thus, each of the managers made predictions on 12 SR items, 12 DR items, and 12 MDR items. In this way, the degree of measured discordance in the attitudes of a subordinate pair was varied for each manager, though held constant from manager to manager.

TABLE 3. MEANS AND VARIANCES ON THE SELECTION VARIABLES FOR  
THE ATTITUDE-PREDICTABLE, ATTITUDE-DIVERGENT,  
AND ATTITUDE-UNPREDICTABLE SUBORDINATES

Type of Subordinate	Acquaintance Rank		Negative Member	
	Mean	Variance	Mean	Variance
Attitude-Predictable	1.4	.24	1.6	.24
Attitude-Divergent	4.5	7.36*	5.2	14.10*
Attitude-Unpredictable	9.1	25.03*	9.3	25.67*
Type of Subordinate	Dissatisfaction Score		Negative Member	
	Mean	Variance	Mean	Variance
Attitude-Predictable	8.7	17.60	15.3	50.96
Attitude-Divergent	4.8	10.51	23.9	53.61
Attitude-Unpredictable	8.4	20.73	16.2	75.48
Type of Subordinate	Months Supervised by Manager		Negative Member	
	Mean	Variance	Mean	Variance
Attitude-Predictable	52.5	1628.88	46.4	672.66
Attitude-Divergent	44.4	929.29	47.9	831.03
Attitude-Unpredictable	26.3	446.08	27.5	551.22

*N* = 30 for each entry in the table.

\*Acquaintance Rank variances for AU and AD subordinates are higher than those for AP subordinates because the branches differed in the number of ranks (number of salesmen assigned to the manager) used. AU subordinates were the two last ranked eligible salesmen in the branch. The ranks for AU subordinates ranged from four to twenty-four.



The use of the Degree of Extrapolation criterion is based on the following argument. Consider a particular manager and two subordinates assigned to him:

1. The 73 statements in the Sales Attitude Questionnaire measured subordinates' attitudes which had been observed by the manager.

2. Response behavior for the pair of subordinates on each of the 73 statements could be classified into one of four categories, IR, SR, DR, MDR (see Table 1, Chapter 3).

3. The classification, then, resulted in four "groupings" of attitude statements.

4. The manager has gained equal *amounts* of information, on the average, from his observations of the subordinates' attitudes as measured by *each* of the four groupings of statements. Expressed another way, the probability of the manager possessing any specific *amount* of information about the subordinates' responses to a randomly selected attitude statement was not influenced in any way by the grouping into which the statement had been categorized.

5. Although the average *amount* of information possessed by the manager was the same for each of the four groupings, the average *usefulness* of the information differed for each of the four groupings.

6. Both the amount *and* the usefulness of the information possessed by the manager influenced his prediction accuracy.

7. Where the manager possessed equal *amounts* of information for each of two prediction situations, the degree of inference (extrapolation) required was inversely related to the *usefulness* of the information associated with each of the two prediction situations.

From this line of reasoning, the three types of forced-choice item, SR, DR, and MDR, were seen as presenting the manager with decisions based on equal *amounts* of information; however, the *usefulness* of the information and, consequently, the degree of inference required from the information possessed, were assumed to differ for the three types of item. It was assumed the manager possessed the most useful information in predicting the subordinates' responses to MDR items. It was further assumed the manager possessed the least useful information in predicting the subordinates' responses to SR items. Finally, it was assumed the manager, in predicting the subordinates' responses to DR items, possessed information useful to a degree somewhere in between the degrees of usefulness assumed for SR and MDR items.

It is now possible to formulate the hypothesis examined by the Degree of Extrapolation criterion:

**General Hypothesis IV.** The accuracy of empathic judgment is inversely related to the degree of inference required by the prediction situation.

The purpose of the rather long discussion has been to articulate the difference between the Degree of Acquaintance and Degree of Extrapolation criteria. The Degree of Acquaintance criterion varied the *amount* of information possessed by the manager by presenting prediction situations associated with three levels of observation (AP, AD, and AU subordinates). The Degree of Extrapolation criterion varied the *character* of the information possessed by the manager by presenting prediction situations associated with the three levels of usefulness of information (SR, DR, and MDR items).

#### 7.4. Preparation of the Individual Empathy Inventory

Individual Empathy Inventories were prepared for each of the branch sales managers from response data obtained from the Sales Attitude Questionnaire. Each of the Judges received a different inventory, although the same pool of 73 statements was used to prepare the forced-choice items in each inventory. Approximately 90 per cent of the statements used to prepare items for any two randomly selected inventories would be found to be identical. Thus, the overlap in the use of statements was very high. Table 4 presents the item design of the individual Empathy Inventory, and in Appendix D a copy of one of the inventories used in the study will be found.

From Table 4 it is seen that each Judge predicted on 12 items for each of the three pairs of subordinates, AP, AD, and AU. It is also seen that each Judge predicted on 12 items for each of three types of NIR pattern, MDR, DR, and SR. Finally, within any four item subscale described by the same pair of subordinates and the same NIR pattern, each Judge predicted on three Scorable items and one Unscorable item. A complete inventory consisted of 36 items.

**Matching of Statements for the Inventories.** The reader will recall from Chapters 3, 4, and 5 the highly restrictive systems of control

TABLE 4. ITEM DESIGN OF THE INDIVIDUAL EMPATHY INVENTORY

Number	NIR Pattern Presented	Type of Subordinates Presented	Item Content Presented
1	MDR	APS	Scorable
2	MDR	APS	Scorable
3	MDR	APS	Scorable
4	MDR	APS	Unscorable
5	DR	APS	Scorable
6	DR	APS	Scorable
7	DR	APS	Scorable
8	DR	APS	Unscorable
9	SR	APS	Scorable
10	SR	APS	Scorable
11	SR	APS	Scorable
12	SR	APS	Unscorable
13	MDR	ADS	Scorable
14	MDR	ADS	Scorable
15	MDR	ADS	Scorable
16	MDR	ADS	Unscorable
17	DR	ADS	Scorable
18	DR	ADS	Scorable
19	DR	ADS	Scorable
20	DR	ADS	Unscorable
21	SR	ADS	Scorable
22	SR	ADS	Scorable
23	SR	ADS	Scorable
24	SR	ADS	Unscorable
25	MDR	AUS	Scorable
26	MDR	AUS	Scorable
27	MDR	AUS	Scorable
28	MDR	AUS	Unscorable
29	DR	AUS	Scorable
30	DR	AUS	Scorable
31	DR	AUS	Scorable
32	DR	AUS	Unscorable
33	SR	AUS	Scorable
34	SR	AUS	Scorable
35	SR	AUS	Scorable
36	SR	AUS	Unscorable

for RS-AS relationships, response sets, and response patterns. As 30 inventories were required, a total of 1,080 forced-choice items had to be prepared by matching 2,160 statements. For any one inventory, response patterns on the 73 statements were available for each of the three subordinate pairs. For the 30 inventories, the number of statements to be considered in the matching procedure was 6,570 ( $90 \times 73$ ). Although a statement was not repeated in the matching of the 12 forced-choice items for a Judge's predictions toward any *one* subordinate pair, no attempt was made to prevent statements from being matched again in the preparation of items for the same Judge's predictions toward either of the other two subordinate pairs. Approximately one-half of the 73 statements produced IR patterns for any one pair of subordinates. The remaining statements produced the three NIR patterns. Without the restrictions, the number of ways the IR and NIR statements could have been matched to produce 12 forced-choice items may be shown to be astronomical. Under the restrictions the number was still on the order of  $10^5$ , and the statements had to be matched for 90 pairs of subordinates in all (30 Judges, each with three pairs of subordinates)! Consequently, it was necessary to program the problem for the UNIVAC 1103 Scientific Electronic Computer.<sup>3</sup>

The program was essentially a table "lookup" and comparison program. It should be understood by the reader, at this point, that the FCDACC approach is probably not a practical solution to the empathic measurement problem. The costs of preparing the individual Empathy Inventories were excessive. The computer program required over twenty hours of computer time and punched out over 14,000 IBM cards. The cards had to be sorted and listed. At this point the forced-choice items had not been selected. The eligible items had been constructed and listed in order of priority by the computer. About forty hours were required for the investigator to select the 1,080 forced-choice items from the computer output information. It should be stated that, in spite of the many man-years saved by the electronic computer, judgment was still required in the final selection of the forced-choice items. The operations were about 80 percent clerical; however, if the same computer output data

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<sup>3</sup>Although improvements in the program seem highly desirable from the experience gained in this research, the program will be made available to any researcher requesting it from the author.



were used by another investigator, precisely the same inventories would *not* result. Nor would this investigator be able to repeat the selection process with results identical to those obtained in the selections made for the study reported in this dissertation. Nevertheless, the procedures were sufficiently clerical and systematic that a high percentage of the selections *would* be identical for independent investigators, and non-identical selections would possess properties identical or highly similar to those already enunciated.

***Administration of the Individual Empathy Inventories.*** Once the items had been selected, the thirty inventories were typed, a copy of each retained as a key, and the originals mailed to the thirty branch sales managers. It is recognized that a form of cheating might be possible with the procedure used. A sales manager could, conceivably, obtain information about his subordinates' attitudes either by subtle observation and verbal discussion or by direct inquiry. The only manner of controlling this possible bias in the study was seen as a carefully worded appeal to the sales managers concerning the confidential nature of the empathy phase of the study. The research nature of the study was emphasized, and all correspondence with the managers was reproduced on University of Minnesota letterhead stationery. The managers were guaranteed their scores would not be released under any circumstance to another employee of the company. They were also warned that the salesmen were *not* to be informed in any way of the existence of the empathy phase of the study. It was made obvious to the managers that the salesmen would feel their confidence had been violated if they knew their returns had been used in the preparation of the empathy inventories. (On this point, the writer feels justified in his contention that no manager could gain information from the inventories, per se, that could be considered a violation of the pledge of anonymity to the salesmen.)

Other than these verbal inducements, no method of preventing the managers from approaching their sales subordinates was adopted. It is believed by the writer that the managers viewed the research as both interesting and inconvenient, but certainly not sufficiently threatening to prompt the undertaking of any risk on its behalf. Although a possibility, the probability of any manager having risked embarrassment, or having expended any more energy than necessary to complete the inventory and return it, was considered to be extremely small.



### 7.5. Item Content and Ease of Prediction

In the design of the study, attention was given to a possible influence on the Judges' Forced-Choice Differential Accuracy assignable to differences in the specific content of the statements making up the forced-choice items. The attitudes measured by certain statements might be more *predictable* for the Judges than attitudes measured by other statements. The attitudes to be predicted might be said to require different degrees of "the creative act of hypothesis-formation" in the sense Meehl has proposed (Meehl, 1954, pp. 68-71). As discussed earlier in this chapter, Gage and Cronbach (1955) treat this construct as "extrapolation" or "inference." It was defined in such a way as to exist independently of the "evidence" available to the Judge in his decision process. This influence on the FCDACC measure will be referred to as statement "predictability" to avoid confusion with the third outside criterion variable, Degree of Extrapolation, previously considered in this chapter.

The reader may wonder as to why this "predictability" influence was not discussed with the response sets identified in Chapter 5. There is a very marked distinction between response sets which may artifactually produce Accuracy in the empathy measure (such as the "controversiality" and "intensity" response sets controlled in this study) and the "predictability" influence discussed here. The "predictability" influence cannot artifactually produce empathic Accuracy on the part of the Judges. It influences only the Judges' opportunities to demonstrate empathic accuracy. In the absence of any empathic sensitivity on the part of the Judges, it would have no effect whatever on the FCDACC Scores.

To investigate the possibility of a "predictability" difference in the statements, the following approach was employed. A panel of four psychologists (experimental, clinical, industrial, and social) was asked to Q sort the 73 statements on the "ease of prediction" the statements would present to a Judge. They were asked to consider the content and exact wording of the statements. A second panel, made up of three 3M divisional sales managers, was given the same set of instructions. The exact procedure is given in Appendix E.

Inter-Judge correlations between the Judges within each panel were calculated, and the presence or absence of a significant panel-to-panel

agreement on the statement rankings was tested by Chi-square and product-moment correlation. The results are given in Table 5.

The panel-to-panel inter-correlation was only  $+ .13$ , not statistically significant ( $r_{.05} = .23$ ;  $df = 71$ ). The Chi-square carried out on the relationship between the two panels' assignment of statements to the upper and lower halves of their respective ranking distributions was 1.68,  $P = .20 > P > .15$  ( $\chi_{.05}^2 = 3.84$ ;  $df = 1$ ). The only possible interpretation of these results must be: whatever differences in statement "predictability" might have existed, two panels of "experts," psychologists and sales managers, could not produce sufficiently reliable agreement to justify the control of a "predictability" influence in this study.

TABLE 5. INTER-JUDGE CORRELATIONS FOR TWO PANELS  
JUDGING STATEMENT "PREDICTABILITY"

	Psychologists			
	Judge A	Judge B	Judge C	Judge D
Judge A	—	-.20	+.34*	+.18
Judge B		—	-.08	-.07
Judge C			—	+.44*
Judge D				—

	Sales Managers		
	Judge A	Judge B	Judge C
Judge A	—	+.15	+.17
Judge B		—	+.18
Judge C			—

\* $r_{.01} = .30$ ;  $df = 71$

## 7.6. Statistical Hypotheses to be Tested

The following statistical hypotheses have been translated from the general hypotheses presented in this and the previous chapter:

**Statistical Hypothesis I:** There is no difference between the population cumulative distribution of observed FCDACC Scores for the managers and a cumulative distribution of theoretical FCDACC Scores derived from chance probability statistics.

**Statistical Hypothesis II:** There is no difference between the population means of FCDACC Scores for High HR and Low HR managers.

**Statistical Hypothesis III:** There are no differences between the population means of FCDACC Scores resulting from predictions toward Attitude-Predictable, Attitude-Divergent, and Attitude-Unpredictable subordinates.

**Statistical Hypothesis IV:** There are no differences between the population means of FCDACC Scores resulting from predictions on Similar Response, Dissimilar Response, and Maximally Dissimilar Response items.

Statistical Hypothesis I was tested by the Kolmogorov-Smirnov Test applied to the difference between the cumulative distribution of the managers' actual FCDACC Scores and a cumulative distribution of theoretical FCDACC Scores derived from chance considerations alone. The other three statistical hypotheses were tested with *F* tests in the analysis of variance. The reader will realize that hypotheses other than the four major hypotheses thus far presented were examined in the research design. These will be referred to as minor hypotheses and given only limited attention in the study. Such a procedure is consistent with Newton's refusal to formulate hypotheses needlessly ("*hypotheses non fingo*") (Johnson, 1950, p. 62). In this study a distinction is drawn between major hypotheses which guided the research, generated the research design, and operated as working hypotheses — and minor hypotheses which were generated by the research design, formulated from observations associated with the mechanics of the research procedures, and incorporated into the design as a "nicety" allowed by the particular design arrangement. One such minor hypothesis should be mentioned.

In the design developed for this study a categorical treatment factor was included in the analysis of variance model to examine a minor hypothesis concerning the effect of Scorable and Unscorable items on the Judges' prediction accuracy. As no favorable response direction could be assigned to the Unscorable statements matched in the construction of unscorable items, the minor hypothesis was formulated that these items

would operate to lower the Judges' predictive accuracy as compared to items constructed from Scorable statements.

### 7.7. Analysis of Variance Model

As the major hypotheses thus far set forth were of primary interest in the evaluation of the FCDACC measure, the study was designed to provide a separate treatment factor for three of the general hypotheses (II, III, and IV). The Kolmogorov-Smirnov Test was used to investigate General Hypothesis I. The minor hypothesis discussed in the previous section was also examined in the design as a separate treatment factor.

The nature of the empathic process dictated that its investigation be approached by means of a "within individuals" rather than a "between individuals" design. Each of the managers predicted for different Others on different items. Even in studies where Judges predict on identical items toward identical Others known to all Judges (with the exception of filmed "Standard" Others), there is no guarantee that each Judge possesses *identical* "psychological distances" with the Others. A comparison *between* Judges could be valid only if such factors as degree of acquaintance and opportunity to observe the Other are carefully controlled. No possible evaluation of the effectiveness of such controls is known to the writer.

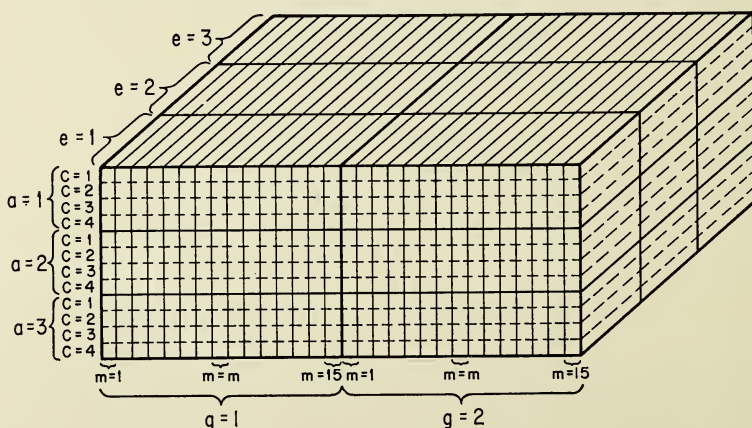


Fig. 4. Visual schematic of analysis of variance model



As a consequence of this argument, it was considered desirable to investigate empathy by means of a "within individuals" analysis. In this study "within individuals" and "between individuals" tests of the sensitivity of the FCDACC measure were made. The design was primarily developed for "within individuals" comparisons, however, and the single "between individuals" test (High HR vs. Low HR managers) is subject to the criticism above. A description of the letter designations for the treatment factors and their levels, as they were defined for the analysis of variance model, is given in the accompanying table. The reader will find a visual presentation of the experimental design in Fig. 4.

In the design, the levels of M (Managers) were not treatment levels. They are best viewed as experimental material or whole plots upon which the treatment combinations were planned. The design consisted, then, of two blocks (two  $g$  levels) represented by the two groups, High HR and Low HR managers. Within each block there were fifteen whole plots ( $m$  levels) represented by the fifteen managers in each group. Each whole plot was then divided into three split plots to provide three treatment

Treatment Factor	Treatment Level	Description
G (Group):	$g = 1$	High HR manager predictions
Human Relations Skills	$g = 2$	Low HR manager predictions
M (Manager):	$m = 1$	Predictions by manager 1
Experimental Material	$m = 2$	Predictions by manager 2
	.	.
	.	.
	.	.
	$m = 15$	Predictions by manager 15
A (Acquaintance):	$a = 1$	Predictions directed toward AP subordinates
Degree of Acquaintance	$a = 2$	Predictions directed toward AD subordinates
	$a = 3$	Predictions directed toward AU subordinates
E (Extrapolation):	$e = 1$	Predictions on MDR items
Degree of Extrapolation	$e = 2$	Predictions on DR items
	$e = 3$	Predictions on SR items
C (Classification):	$c = 1$	Predictions on Scorable items
Classification of item	$c = 2$	Predictions on Scorable items
	$c = 3$	Predictions on Scorable items
	$c = 4$	Predictions on Unscorable items



levels of the Acquaintance factor (*a* levels) represented by the three pairs of subordinates (AP, AD, and AU). Each split plot was then subdivided into three split-split plots to provide three treatment levels of the Extrapolation factor (*e* levels) represented by the three types of item (SR, DR, and MDR). Finally, each of the split-split plots was further subdivided into four split-split-split plots to provide prediction situations on four levels of the Classification of Items treatment factor (*c* levels). This was accomplished by constructing items from either Scorable and Unscorable statements, but not combinations of the two. In summary, then, each manager was observed under all possible prediction situations.

An important feature of the design concerns the randomization of treatment factors and levels applied to the whole plots (managers). From Table 4, presented in this chapter, the reader will note the ordered arrangement of items presenting Acquaintance, Extrapolation, and Classification of items treatment combinations. The tests were all prepared with the same item sequence shown in the table. This procedure was employed for the following reasons:

1. The prediction task presented to the managers involved a highly complex judgmental process.
2. The possibility existed that the managers might become impatient, fatigued, or, for some reason, unmotivated toward the end of the test.
3. Items appearing early in the test might, then, be expected to enjoy the highest level of concentration on the part of the Judge.
4. To insure the most favorable evaluation of the managers' empathic behavior, items associated with the three degrees of Acquaintance and the three degrees of Extrapolation (and four levels of Classification of items) were so sequenced as to present prediction situations *increasing* in difficulty. The highest motivation would therefore be expended on the easiest prediction situations.

The result of this procedure was to confound the treatment effects with sequence effects. If motivation decreased with time in the test taking situation, accuracy would also decrease. Under these conditions a significant trend in the Acquaintance or Extrapolation treatment means would result. The investigator was presented with the following dilemma: sequencing the treatments would provide the maximum opportunity for the demonstration of empathy; randomizing the treatments

would maximize the meaningfulness and interpretability of possible trends in the treatment means. As the sequence effect could *not* artifactually influence the FCDACC scores in such a way as to result in better than chance accuracy where empathy did not exist, but would operate to *reduce* accuracy should such exist, the investigator elected to confound sequence effects with the treatment effects.

In the investigator's opinion, any decrease in motivation during the test was probably not substantial. Consequently, in the results presented in Chapter 8 the writer has interpreted trends and treatment effects as though the sequence or motivation effects were nonsignificant. The reader will realize, however, that no empirical evidence may be obtained from the experiment, as designed, to justify this disregard of the confounding presented. In short, the writer makes the *assumption* that declining motivation during the test period was not significant.

It should be noted that the whole plots,  $m = 1, 2, \dots, 15$ , did not cross the blocks, i.e., manager " $m$ " in one block was not the same individual as manager " $m$ " in the other block. Another feature of the design is the absence of replications within the cells or split-split plots. Replication did exist in the design, however. Each manager ( $m$  level) is a replication within a split block. Replication within three-fourths of the cells *did* exist if one examines the Classification of items (C) treatment levels. The three levels,  $c = 1$ ,  $c = 2$ , and  $c = 3$ , were all replications of identical treatment conditions within the same split-split plots. However, the fourth  $c$  level (Unscorable items) presented a treatment condition *not* identical to the treatment conditions presented by the three other  $c$  levels (Scorable items). To obtain equal numbers of observations in the cells, the four  $c$  levels were viewed as four different treatment conditions; the arrangement presented a design with one observation per cell. The first three  $c$  levels were actually "pseudo" levels, however, and the Classification (C) main effect rendered meaningless. An orthogonal contrast was necessary to compare levels 1, 2, and 3 with level 4.

The mean squares derived from the interactions of managers (within groups) by treatments and by treatment interactions provided the seven error terms for the "within individuals" tests of significance. The mean squares between individuals (within groups) provided the between individuals error term required to test the significance of the difference between the two groups (Group main effect).

### 7.8. Interpretation of Tests of Significance

In previous studies investigators have frequently failed to make assumptions about the existence of empathy. As a consequence, *failure* to discriminate between treatment levels has sometimes been interpreted as *lack* of empathy, rather than inadequacy of the measurement procedure. In an area where the measurement problems are severe, as in this case, priority of responsibility for such a failure must first attach to the measurement procedure. In this study, failure to discriminate between the treatment levels presented by the several outside criteria will be interpreted as insensitivity of the FCDACC approach to the measurement of empathy. It is understood by the investigator that the measurement procedures and techniques used to arrive at the treatment levels of the outside criteria may be inadequate. Nevertheless, in this study the FCDACC measurement approach presents the major "unknown" in terms of departure from traditional psychometric procedure. For example, the investigator was unable to devise any method of measuring the reliability (other than test-retest reliability) of the individual Empathy Inventories administered in this study. Consequently, failure to discriminate between the treatment levels of the outside criteria will be interpreted primarily as failure of the FCDACC measurement approach, rather than inadequacy of the criteria examined.

## CHAPTER 8

# *Results and Conclusions*

This chapter presents the results of the Statistical Analysis of FCDACC Scores. The major conclusions drawn from the several analyses will be found at the end of the chapter.

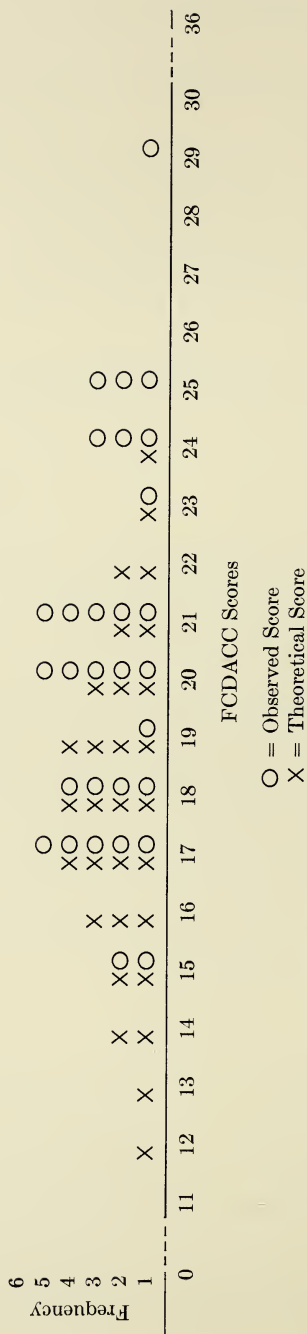
### 8.1. Results of FCDACC Comparisons with Chance

The distribution of FCDACC Scores obtained from the thirty sales managers is compared with a distribution of FCDACC Scores calculated from chance probability statistics in Fig. 5. The Kolmogorov-Smirnov Test of the departure of the cumulative distribution of observed scores from the cumulative distribution of theoretical scores was carried out. The technique compares the two cumulative distributions at the point of maximum discrepancy. The statistic is

$$z = D_{\max} \sqrt{N},$$

where  $D_{\max}$  equals the difference between the cumulative percentages ( $\div 100$ ) for the observed and theoretical scores taken at the point on the distribution where it is maximum;  $N$  equals the number of scores in the sample of observed scores, and  $z$  is a statistic of known distribution, the probabilities for which have been derived and tabled by Smirnov (1948, pp. 279-281).

In Fig. 5 it may be seen that the point of maximum discrepancy is the attainment of a score equal to or greater than 20. Exactly 60 percent of



**Fig. 5.** Comparison of Frequency Distributions for Observed and Theoretical FCDACC Scores



the managers produced a score of 20 or better on the individual Empathy Inventory. Expansion of the binomial expression  $(\frac{1}{2} + \frac{1}{2})^{30}$  and summing the probabilities down to and including the score of 20 yielded the theoretical cumulative probability of .309. The  $D_{\max}$ , then, is

$$.60 - .309 = .291\%,$$

and

$$z = (.291)(5.4772) = 1.59.$$

Reference to Smirnov's Table provides the probability of so large a departure under chance considerations alone; the probability is only .013. The test may be said to have rejected Statistical Hypothesis I (the FCDACC Scores do not differ from chance) at the .05 level of significance but not at the .01 level of significance.

It is now possible to examine the highest score obtained by a manager and determine whether this score could have been expected on the basis of chance probabilities alone. The highest observed score was 29. The probability of a manager (selected before the test administration) attaining a score of 29 or higher by chance alone as calculated from the binomial expansion is  $p = .0002$ . Since we selected the highest score from the distribution on an *a posteriori* rather than *a priori* basis, the probability is too low. Reference to the binomial law with this value will produce the probability of zero managers succeeding out of thirty, where success is defined by a probability of .0002.

$$p_{30,0} = \frac{30!}{0!30!} (.0002)^0 (.9998)^{30} = .994.$$

Subtracting .994 from 1.00 yields .006, the probability of one or more managers obtaining a score of 29 or higher on the basis of chance considerations alone. As the  $p < .01$ , the statistical hypothesis attributing the score to random sampling error alone is rejected at the .01 level of significance.

In summary then, Statistical Hypothesis I was tested and rejected at the .05, but not at the .01, level of significance ( $P = .013$ ). The statistical hypothesis that the highest score in the distribution did not differ significantly from chance expectation was tested and a probability of less than .01 obtained. The following interpretation of these better than chance results seem warranted:

1. The presence of empathic accuracy has been demonstrated in the prediction behavior of the managers as a group.

2. More specifically, the presence of empathic accuracy was demonstrated in the prediction behavior of the *most accurate* manager.

3. The results do *not* imply that each and every manager possessed empathy. In fact, this interpretation would seem contradicted from an inspection of Fig. 5.

## 8.2. Analysis of Variance of FCDACC Scores

Table 6 provides the results of the analysis of variance of FCDACC Scores. The difference between the two groups, as estimated by the test of the Group mean square, falls far short of the .05 level of significance. Hence, no overall difference in the predictive accuracies of the High HR and Low HR managers was found to exist.

The within individuals analysis of the Acquaintance treatment factor yielded a significant ( $P = .05$ ) main effect mean square when tested with error (a). Thus, differences in accuracy were observed for different levels of Acquaintance as defined by the predictions directed toward three types of subordinates, Attitude-Predictable, Attitude-Divergent, and Attitude-Unpredictable. In a later section of the chapter the Acquaintance factor will be further examined with the aid of a test for the presence of a significant trend in the prediction accuracies associated with the AP-AD-AU subordinate levels.

The  $F$  test of the Extrapolation mean square yielded a probability level of .06 when tested with error (b). The statistical hypothesis (IV) concerning this treatment effect remains in doubt. A more precise examination of the E factor, accomplished with a test for the presence of a trend in the MDR-DR-SR item accuracies, was carried out and is presented later in the chapter.

The Acquaintance by Extrapolation interaction, although nonsignificant, is presented to the reader, graphically, in Fig. 6. This has been done to allow a visual inspection of the results of the A and E factor influences on the prediction accuracies of the managers. From Fig. 6 the reader will note the sensitivity of the FCDACC measure to the treatment combinations presented by the factorial arrangement of these outside criterion variables.

Each point in the figure is the total number of correct predictions produced by all thirty managers on 120 forced-choice items. (Each point represents a treatment combination consisting of four items for each of

TABLE 6. ANALYSIS OF VARIANCE OF FCDACC SCORES

Source of Variance	df.	SS	MS	F	P
<i>Between Individuals</i>					
GM - 1	29	9.0741			
<i>Between Groups</i>					
G - 1	1	.0148	.0148	.05	
<i>Error between Individuals</i>					
G(M - 1)	28	9.0593	.3236		
<i>Within Individuals</i>					
GM(AEC - 1)	1050	256.3889			
<i>Between Treatments</i>					
AEC - 1	35	8.5296			
A	2	2.3907	1.1954	3.92	< .05
E	2	1.2572	.6287	3.08	< .06
C	3	.3963	.1321	.44	
A × E	4	.5315	.1329	.65	
A × C	6	.6988	.1165	.43	
E × C	6	.7426	.1238	.54	
A × E × C	12	2.5123	.2094	.97	
<i>Group × Treatments</i>					
(G - 1)(AEC - 1)	35	14.7852			
G × A	2	.2352	.1176	.39	
G × E	2	.0352	.0176	.08	
G × C	3	.9778	.3259	1.09	
G × A × E	4	2.3315	.5829	2.83	< .05
G × A × C	6	4.4383	.7397	2.73	< .05
G × E × C	6	1.9944	.3324	1.46	
G × A × E × C	12	4.7728	.3977	1.86	< .05
<i>Error within Individuals</i>					
G(M - 1)(AEC - 1)	980	233.0741			
error (a):					
G(M - 1)(A - 1)	56	17.0963	.3053		
error (b):					
G(M - 1)(E - 1)	56	11.4296	.2041		
error (c):					
G(M - 1)(C - 1)	84	25.2370	.3004		
error (d):					
G(M - 1)(A - 1)(E - 1)	112	23.0815	.2061		
error (e):					
G(M - 1)(A - 1)(C - 1)	168	45.5852	.2713		
error (f):					
G(M - 1)(E - 1)(C - 1)	168	38.3185	.2281		
error (g):					
G(M - 1)(A - 1)(E - 1)(C - 1)	336	72.3259	.2153		
Total	1079	256.4630			

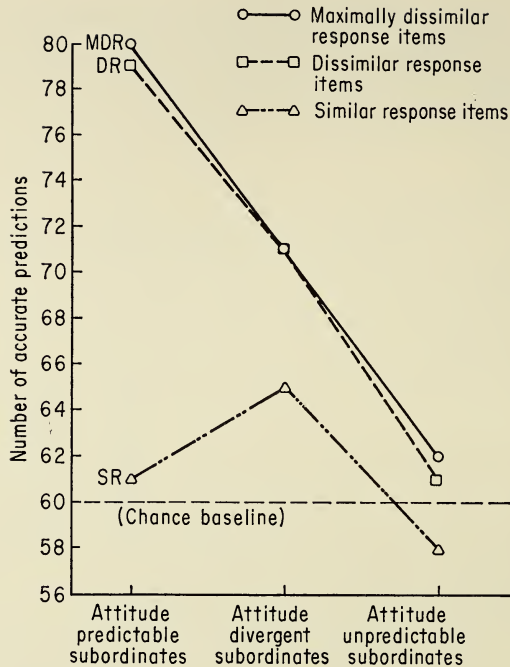


Fig. 6. Graph of acquaintance by extrapolation interaction

thirty managers, or a total of 120 items in all.) As might be expected, the SR items were not predicted with better than chance accuracy. Also, the predictions toward Attitude-Unpredictable subordinates, regardless of the extrapolation required by the item, were no more accurate than would have been expected from chance alone.

From Fig. 6 the reader will also notice a peculiarity of the design used. In designing the study to allow the evaluation of interactions in the managers' prediction behavior, the precision of tests of main effects has been sacrificed to some extent. The Extrapolation main effect, for example, is defined by the differences existing between the three lines, MDR, DR, and SR, in the figure. Thus, for the MDR mean, the totals 80, 71, and 62 are summed and divided by 30 to provide the mean accuracy of the managers for the MDR treatment level. The same procedure is followed for the DR and SR treatment levels. As reported above, the *F* test of the differences in these three means yielded a probability at the .06 level of significance. The question arises, is the test

actually "fair" to the evaluation of the E treatment factor? Federer (1955, pp. 297-298) discusses a design posing what might be considered a similar question. In his example three amounts of fertilizer, 0, 100, and 200 pounds, were used with two methods of application. Clearly, two methods of applying zero pounds of fertilizer do not exist. Consequently, the degrees of freedom involving different treatment combinations of zero amounts of fertilizer were viewed as "dummy" treatments, or estimates of error, and removed from the degrees of freedom examined for the method of application main effect.

The similarity to the design employed in this study is obvious. If empathic accuracy on the part of the managers in their predictions of Similar Response patterns (SR items) is nonexistent, is it meaningful to vary the types of subordinates upon which this zero level of accuracy is measured? This same argument may be made for the treatment combinations involving Attitude-Unpredictable subordinates. If managers possess zero empathy for their AU subordinates, is it meaningful to vary Degree of Extrapolation in measuring this zero empathic accuracy. The investigator suggests that both SR items and AU subordinate predictions involve "dummy" treatments. The investigator has not attempted to remove the degrees of Freedom associated with treatment combinations of the SR level of Extrapolation or the AU level of Acquaintance from the E and A main effects' degrees of freedom in Table 6 for the reason that he was unable to know, in advance, that the managers' accuracies over these levels would be no better than chance.

At least one additional observation might be made from Fig. 6. The MDR and DR extrapolation treatment levels did not differentially influence the predictive accuracy exhibited by the managers. Response patterns of the MDR and DR types apparently (only) represent differences in the *operational* procedures used to measure discordance in the subordinates' attitudes rather than real differences in the *underlying* discordance in their attitudes. The figure indicates that the use of a response surface of "Disagree" and "Agree" in the original measurement of the subordinates' attitudes would probably have resulted in the same conclusions arrived at in this research.

The analysis of variance produced several statistically significant groups by treatments interactions. Of major importance is the Group by treatments interactions. Of major importance is the Group by Acquaintance by Extrapolation interaction tested with error (d). The *F*



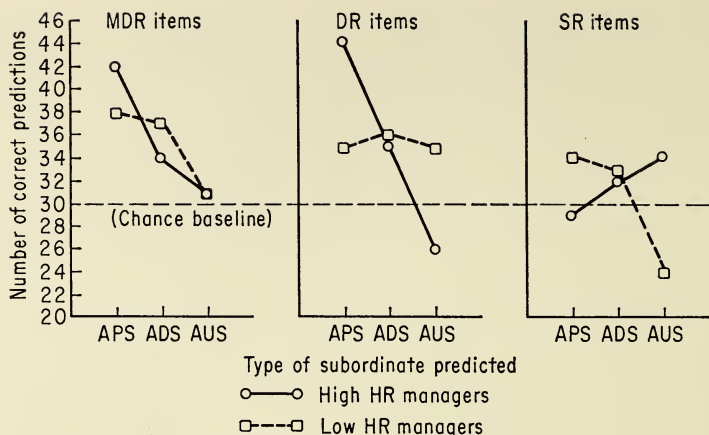


Fig. 7. Graph of group by acquaintance by extrapolation interaction

test surpasses the .05 level of significance. In Fig. 7 the reader will find the interaction presented visually. The interpretation of this interaction is difficult, the more so in view of the discussion of the SR treatment combinations as possible "dummy" treatments. The contribution of the  $G \times A$  interaction within the SR item treatment level (right-hand graph) to the  $G \times A \times E$  interaction appears substantial. Nevertheless, the reader is invited to inspect the  $G \times A$  interactions under the remaining E treatment levels, MDR and DR. The Low HR managers would appear to be less sensitive to the different subordinate types (Acquaintance) than are the High HR managers. If this observation is correct, a differentiation of the two manager groups by the FCDACC measure has occurred. It will be recalled that the Group (G) main effect fell far short of significance. Here we have a difference between the two groups in their differential sensitivities to the three types of subordinates. The difference is characterized by the Low HR managers' approximately equal empathy with AP and AD subordinates, while the High HR managers' empathy with AP subordinates would appear superior to their empathy with AD subordinates.

In the light of the significant  $G \times A \times E$  interaction the investigator examined the data from an exploratory standpoint. The several treatment combinations involving predictions on AU subordinates were

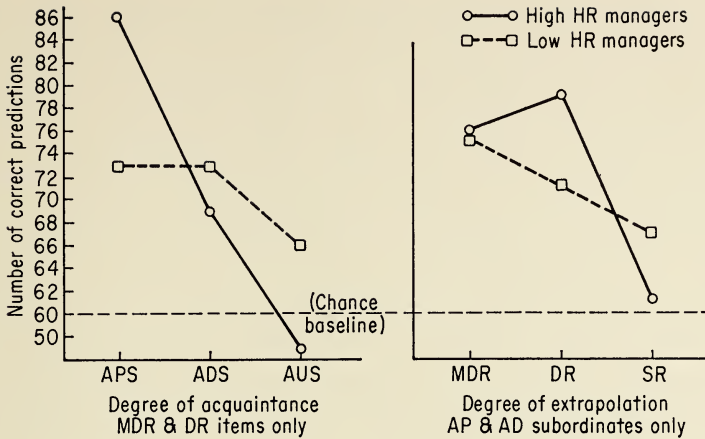


Fig. 8. Graph of group by acquaintance by extrapolation interactions with "dummy" treatment contributions removed

viewed as "dummy" treatments and removed from the evaluation of the managers' accuracies on MDR, DR, and SR items. In the same vein, the treatment combinations involving predictions on SR items were viewed as "dummy" treatments and removed from the evaluation of the managers' accuracies toward AP, AD, and AU subordinates. Figure 8 provides two graphs. The graph on the left presents the  $G \times A$  interaction where all predictions have been made on either MDR or DR items. The graph on the right presents the  $G \times E$  interaction where all predictions have been made toward either AP or AD subordinates.

The  $G \times A$  interaction, with "dummy" item predictions removed, bears out the  $G \times A \times E$  interaction interpretation advanced above. On items permitting some degree of extrapolation (MDR and DR), the High HR managers are significantly more sensitive to the three subordinate acquaintance levels than are the Low HR managers.

From this, the writer suggests the two groups have been differentiated in their prediction behavior. An interpretation of such group differences is here suggested by the writer. The ranking of subordinates by the managers (see Chapter 7, Selection of the Others) required the managers to estimate the amount of acquaintance existing between themselves and their subordinates. This is apparently a rather complex psychological dimension, as indicated by a less than perfect relationship

between the Acquaintance rank and the period of supervision associated with the subordinates. (One manager ranked a subordinate second out of six where he had supervised the man only two months and had known the man only six months!) If a manager were able to rank his subordinates with respect to the "true" acquaintance existing between himself and these individuals, his empathy with each of them would be expected to relate highly with the rankings. On the other hand, if a manager were unable to estimate validly the "true" acquaintanceship between himself and his several subordinates, his empathy with each of these several subordinates would be expected to show no relationship with the rankings. The valid ranking of subordinates with respect to the complex psychological variable, Degree of Acquaintance, might be a more difficult task for managers characterized by unsatisfactory interpersonal relationships, as here represented by Low HR managers. The High and Low HR manager groups predicted with equal accuracy on the average over all three subordinate pairs. From Fig. 7 the reader may see the source of accurate predictions for the two groups. The Low HR managers are superior to the High HR managers in their predictions toward AD and AU subordinates, a situation counterbalancing Low HR manager inferior accuracy in predictions toward their AP subordinates. If this suggested rationale in fact accounts for the results, the two groups must be said to contain managers possessing equal empathy with their subordinates. The difference between the two kinds of managers reflected in the  $G \times A$  interaction would be assignable to the differences in the abilities of the managers to rank, validly, their subordinates on the Acquaintance criterion dimension.

The right-hand graph in Fig. 8 bears out the conclusion drawn from Fig. 7; the MDR and DR items do not result in significantly different prediction accuracies. When taken together, however, they allow somewhat better accuracy than do the SR items. The discussion of Fig. 8, though profitable, has been speculative. For this reason, the writer has not incorporated interpretations discussed in the preceding paragraphs (relating to "dummy" treatments) into the major conclusions of the research reported in this dissertation.

Two additional interactions of the groups by treatments analysis resulted in significance. The  $G \times A \times C$  interaction and the  $G \times A \times E \times C$  interaction were significant at the .05 level. In examining the graphs of these interactions, the investigator was struck by the large

degree of uninterpretable variation in the treatment combination means. The  $G \times A \times C$  interaction involves twenty-four means and the  $G \times A \times E \times C$  interaction involves seventy-two means. It may be possible the reduction of the number of predictions upon which the means are based reaches a point where stability of these means vanishes. This same argument may be made for the  $G \times A \times E$  interaction graphed in Fig. 7. The meaningless interaction close to the "chance baseline" within the SR item level is an example. In this interaction (Fig. 7) each of the eighteen means is based on four predictions by each of fifteen managers. In the  $G \times A \times C$  and  $G \times A \times E \times C$  interactions the means are based on three and one predictions, respectively. (The figures present totals because all treatment combinations are based on the same size of  $N$ .) Aside from this possible explanation, the writer is unable to interpret these significant higher order interactions.

**Orthogonal Contrasts.** In the examination of the Acquaintance and Extrapolation main effects with the  $F$  tests, as presented in Table 6, the most powerful tests of these factors were not employed. It will be recalled that General Hypotheses III and IV were formulated in such a way as to provide the expectation of an "increasing monotonic sequence" (Lindquist, 1953, pp. 99-100). The two treatment factors, Acquaintance and Extrapolation, would be identified as "repeatable trend factors" by Lindquist (1953, pp. 351-352). An important characteristic of a trend factor involves the decision to test for the presence of a trend. The hypothesis formulated for a trend factor anticipates changes in observed means in a direction indicated by specifically ordered changes in the treatment levels of the trend factor. [The usual hypothesis for a (non-trend) factor concerns the presence of *any* changes in the observed means.] Consequently, the decision to test the trend does not rest on an examination of the data. Therefore, it is appropriate to test for the presence of a trend even in the *absence* of a significant  $F$  test of the statistical hypothesis as formulated for the E main effect comparison in Table 6. Here, the E main effect  $F$  test fell just short of significance ( $P = .06$ ); a test for the presence of a trend in the observed means is, nevertheless, indicated.

Two contrasts will be possible with each of the two trend factors (Acquaintance and Extrapolation) as each have two degrees of freedom.



*Contrast 1:*

$$Z_1 = 1M_{i=1} - 0M_{i=2} - M_{i=3}$$

$$H_0: M_{i=1} - M_{i=3} = 0$$

$$H_a: M_{i=1} - M_{i=3} \neq 0$$

*Contrast 2:*

$$Z_2 = 1M_{i=1} - 2M_{i=2} + 1M_{i=3}$$

$$H_0: M_{i=1} - 2M_{i=2} + M_{i=3} = 0$$

$$H_a: M_{i=1} - 2M_{i=2} + M_{i=3} \neq 0$$

$M$  is the treatment mean at the level specified by the subscript  $i$ .  $H_0$  is the null hypothesis and  $H_a$  is the alternative hypothesis. The first contrast tests for the presence of a trend and the second tests for departure from linearity (assuming equally spaced treatment levels). The two contrasts are orthogonal, and both were applied to the trend factors, A and E, in Table 7.

The Classification of items treatment factor was manipulated in the design as a categorical factor. The construction of Scorable and Unscorable items was controlled because the investigator doubted the comparability of two types of item in the prediction situation. The contrast required for a meaningful evaluation of the C factor would combine the Scorable item levels ( $c = 1, 2, 3$ ) and compare the accuracy of prediction observed with that observed for the Unscorable item level ( $c = 4$ ).

*Contrast 3:*

$$Z_3 = 1M_{c=1} + 1M_{c=2} + 1M_{c=3} - 3M_{c=4} = 0$$

$$H_0: M_{c=1} + M_{c=2} + M_{c=3} - 3M_{c=4} = 0$$

$$H_a: M_{c=1} + M_{c=2} + M_{c=3} - 3M_{c=4} \neq 0$$

The contrast may be found in Table 7.

The test for the presence of a trend in the Acquaintance factor exceeded the .01 level of significance. The failure of the second contrast to attain significance indicates the trend may be accepted as linear. The two results taken together allow the conclusion that empathic accuracy is directly related to the managers' estimates of how well they know their subordinates.

The trend observed for the Degree of Extrapolation factor surpassed the .05 level of significance. The failure of contrast 2 to attain significance indicates this trend also may be accepted as linear. The two



TABLE 7. ORTHOGONAL CONTRASTS FOR ACQUAINTANCE, EXTRAPOLATION, AND CLASSIFICATION FACTORS

Source of Variance	df.	SS	MS	F	P
Acquaintance					
Contrast 1	1	2.3347	2.3347	7.65	< .01
Contrast 2	1	.0560	.0560	.18	
Error (a)	56	17.0963	.3053		
Extrapolation					
Contrast 1	1	1.0125	1.0125	4.96	< .05
Contrast 2	1	.2449	.2449	1.20	
Error (b)	56	11.4296	.2041		
Classification of item					
Contrast 3	1	.2086	.2086	.6945	
Error (c)	84	25.2370	.3004		

results taken together allow the conclusion that empathic accuracy is inversely related to the amount of extrapolation or inference required by the prediction situation.

The contrast carried out on the categorical treatment factor, Classification of item, yielded a nonsignificant probability level. It is interesting to note that the direction of the difference was opposite to that anticipated by the investigator. The only conclusion possible, however, is that Scorable and Unscorable items, as defined in this study, have no differential influence on empathic accuracy.

### 8.3. Conclusions

The statistical hypotheses tested in this chapter are presented below with the writer's conclusions immediately following:

**1. Statistical Hypothesis 1.** There is no difference between the population cumulative distribution of observed FCDACC Scores for the managers and a cumulative distribution of theoretical FCDACC Scores derived from chance probability statistics. (Rejected)

**Conclusion 1.** The managers investigated were able to predict, on the average, with better than chance empathic accuracy. At least one manager predicted with accuracy superior to that expected by chance for any single manager in a group the size of the one studied. Much, but not all, of the prediction behavior observed in the study could be ac-

counted for by chance alone. The empathic accuracies of the managers, then, might be described as characterized by statistical significance, but limited practical significance.

**2. Statistical Hypothesis II.** There is no difference between the population means of FCDACC Scores for High HR and Low HR managers. (Accepted)

*Conclusion II.* On the average, High HR managers and Low HR managers, as defined in this study, possessed equal empathic knowledge of their subordinates' attitudes. The finding is puzzling, but the only conclusion warranted from the analysis is that the FCDACC measure was *not* sensitive to the criterion used by the divisional sales managers in selecting the High and Low HR managers.

**3. Statistical Hypothesis III.** There are no differences between the population means of FCDACC Scores resulting from predictions toward Attitude-Predictable, Attitude-Divergent, and Attitude-Unpredictable subordinates. (Rejected)

*Conclusion III.* The managers were able to select, *prior to the prediction situation*, subordinates whose attitudes would be most easily predicted. In the study this was termed Degree of Acquaintance. The acquaintanceship should be recognized as a psychological rather than operational acquaintance as it did not always correspond well with the length of time the manager had supervised the subordinates. The measured discordance in attitudes of the pair of subordinates for whom the managers felt the least acquaintanceship was not predicted with better than chance accuracy by the managers.

**4. Statistical Hypothesis IV.** There are no differences between the population means of FCDACC Scores resulting from predictions on Similar Response, Dissimilar Response, and Maximally Dissimilar Response Items. (Rejected)

*Conclusion IV.* The managers' empathic accuracy *increased* with a *decrease* in the amount of extrapolation or inference required by the prediction situation. Where the measured discordance in the attitudes of two subordinates was very small (high amount of extrapolation required), managers were unable to predict the discordance with accuracy greater than would be expected by chance alone. Attitudes evoking

Dissimilar Responses (Agree vs. Disagree) from two subordinates were predicted with the same accuracy as were attitudes evoking Maximally Dissimilar Responses (Strongly Agree vs. Strongly Disagree) from the two subordinates.

**5. Minor Statistical Hypothesis.** The presence of an obviously favorable scoring direction in the content of the item is unrelated to the managers' empathic accuracy on the item. (Accepted)

**Conclusions from Minor Hypotheses.** (a) The managers' empathic accuracy was not influenced by the presence or absence of a favorable scoring direction in the content of the item on which the prediction was based; and (b) the influence on empathic accuracy of the specific content of the attitudes predicted cannot be reliably estimated, *in advance*, by "expert" judges. These two minor conclusions, in conjunction with the major conclusions, might be summarized, then, in the following overall conclusion: empathic accuracy is more a function of existing psychological acquaintance and amount of inference required by the prediction situation than it is a function of the specific attitudes predicted.

#### 8.4. Summary

In this chapter the results of the analysis of FCDACC Scores obtained from the application of the FCDACC measurement approach were presented. The results, in general, were favorable to the measurement approach evaluated. Two of the three outside criteria of empathic sensitivity, Degree of Acquaintance and Degree of Extrapolation, were differentiated by the FCDACC measure. The other criterion, Human Relations skills, was not differentiated by the measure investigated.

The conclusions, based on the acceptance or rejection of the statistical hypotheses, were presented at the end of the chapter.

## CHAPTER 9

# *General Summary and Discussion*

In the research reported in this thesis, a measure of empathic sensitivity was developed, and the measure was then evaluated through an empirical tryout in a field situation. The major objectives were four in number: (a) to develop a methodologically sound approach to the measurement of empathic accuracy; (b) to investigate the feasibility of the approach in a research application; (c) to attempt to provide a legitimate demonstration of empathy devoid of statistical artifact and methodological error; and (d) to investigate the practical validity of the FCDACC measure of empathy. This chapter summarizes briefly both the manner in which the investigator accomplished the four objectives and the major conclusions arising from the research.

### **9.1. Objective (a): Development of an Empathic Accuracy Measure**

Chapter 3 outlined the measure of empathic accuracy developed in this study. The use of a forced-choice format enabled the investigator to manipulate measured discordance in the attitudes expressed by two Others as well as response sets shown to have influenced previous measures of empathic accuracy. Essentially, the task presented to the Judge required the identification of non-identical response behavior in the

measured attitudes of two named Others. This was accomplished by matching two attitude statements and presenting them as a forced-choice item to the Judge. One of the statements had resulted in identical responses on the part of the two named Others when administered as part of an anonymous attitude questionnaire. The other statement had resulted in one of three categories of non-identical response behavior on the part of these two Others. The order of the two statements comprising the forced-choice item was randomized with certain restrictions. The task, then, required the Judge to differentiate between the two named Others with respect to their measured responses to the two attitude statements. As a consequence, the approach was termed the Forced-Choice Differential Accuracy (FCDACC) measure.

**Methodological Criteria.** Three methodological criteria were specified as desirable for an adequate evaluation of an acceptable empathic accuracy measure (Chapter 2):

1. The control or elimination of Real Similarity-Assumed Similarity effects upon the Accuracy scores.
2. The control or elimination of Judge-originating and Other-originating response set influences on the Accuracy scores.
3. The provision of a capability for assessing "better than chance" Accuracy without recourse to correlations with outside criterion variables.

Chapters 4, 5, and 6 applied the three criteria to the FCDACC measure, and the approach was shown to satisfy the criteria from a logical-procedural standpoint.

Criterion 1 was satisfied by manipulating, in the construction of the forced-choice items, the Real Similarity and Assumed Similarity relationships existing between the Judges and the Others.

Criterion 2 was satisfied in an almost identical manner with that used to satisfy criterion 1. The response sets identified in the literature, in addition to those peculiar to the forced-choice format, were systematically controlled through the matching of statements making up the forced-choice items. The response sets identified and controlled were: (a) "controversiality," defined as the variability of the Others' responses to the statements; (b) "intensity," defined as the difference between the Judges' response mean on a statement and a theoretical response mean at the exact center of the response surface (Undecided); (c) "atypicality"



of the Judge's response, defined as an unfavorable self-description on the statement by the Judge; and (d) "atypicality" of the Others' response behavior, defined as a reversal of the usual direction of response differences on the part of two specified Others. (On the basis of the total number of unfavorable responses to 49 Scorable attitude statements, the two Others were identified as Positive and Negative in their overall attitudes. A reverse attitude statement, then, elicited a more favorable response from the Negative Other than from the Positive Other.)

The FCDACC measure successfully met the requirements of criterion 3 as a result of the mechanics of the scoring procedure inherent in the forced-choice item format. The approach proved particularly well suited to the application of procedures designed to identify better than chance prediction accuracy on the part of the Judges.

## **9.2. Objective (b): Evaluation of the Feasibility of the FCDACC Approach**

Chapters 7 and 8 reported a carefully designed and executed research study providing an empirical tryout of the FCDACC approach in an industrial setting. In general, the results justified the complex procedural operations necessary for effective utilization of the approach. From the standpoint of feasibility, however, the approach proved somewhat impractical. It was necessary to utilize the UNIVAC Electronic Computer to construct the forced-choice items, as the investigator was incapable of this task due to the highly complex and rigorous series of restrictions governing this phase of the study. The FCDACC approach, then, must be considered to have the following limitation. The expense of (and access to) electronic computer equipment must accompany each application of the technique.

A second, though less serious, limitation posed by the technique concerns the necessity of obtaining reliable measures of the variable to be predicted by the Judges. Thirdly, in the case of anonymous attitudes, the approach is limited to the measurement of empathy with Others willing to volunteer their responses.

Finally, a most serious limitation is the necessity of varying the prediction items from Judge to Judge. The technique does not allow a measure of the reliability of the Judge's prediction behavior. Consequently, the approach must be limited to research applications of an

experimental character as opposed to applications of a day-to-day practical selection and assessment variety. In summary, then, the second objective of this research resulted in a less than favorable evaluation of the feasibility of the FCDACC approach in its application in the field.

### **9.3. Objective (c): Demonstration of Empathy**

Chapter 8 reported the results of three comparisons of the observed FCDACC scores with appropriate probability models based on chance. The Kolmogorov-Smirnov test rejected ( $P = .013$ ) the hypothesis that the cumulative distribution of observed FCDACC scores represented only a chance deviation from a theoretical distribution derived from chance probability statistics. Secondly, the highest score in the distribution of observed scores was identified and the probability of its occurrence by chance alone calculated. The probability of one or more managers attaining as high a score or higher was less than .01. Finally, the analysis of variance yielded four  $F$  tests beyond the .05 level of significance out of fifteen computed. In addition, the analysis yielded two statistically significant orthogonal contrasts. As the probability of obtaining this number of significant comparisons by chance alone is extremely small, this evidence from the analysis of variance is further proof of the demonstration of empathy on the part of the managers studied. An inspection of the data as provided in Figs. 6, 7, and 8 would indicate an absence of response set influences operating in a random or meaningless way. This empirical evidence in conjunction with an evaluation of the procedures employed to control or eliminate response set influences suggests the satisfactory achievement of the objective as stated: the legitimate demonstration of empathy devoid of statistical artifact and methodological error.

### **9.4. Objective (d): Investigation of the Practical Validity of the FCDACC Measure**

For the evaluation of the practical validity of the FCDACC approach to the measurement of empathy, a large corporation with a national sales organization was selected. Three generally accepted "out-

side" criteria of empathic sensitivity were selected to generate the design of the study. The criteria were: (a) Human Relations Skills, (b) Degree of Acquaintance, and (c) Degree of Extrapolation. These criteria were then manipulated in the design as treatment factors, each with two or more levels or classifications.

Criterion (a) was investigated by the selection, as Judges, of fifteen managers high in human relations skills and fifteen managers low in these skills. The overall difference in FCDACC Scores observed for the two groups of managers was *not* significant. The writer speculated that differences *did* occur between the two groups, however, in their differential sensitivity to three types of subordinates presented in the design. High Human Relations managers were more empathic with their best known subordinates and less empathic with moderately known subordinates. Low Human Relations managers were about equally empathic with best known and with moderately known subordinates. The writer tentatively interpreted these differences as the result of invalid rankings on the Acquaintance criterion by Low HR managers.

Criterion (b) was investigated by having the managers each rank their subordinates as to "how well he (the manager) knew them." The first two ranked subordinates (Attitude-Predictable), last two ranked subordinates (Attitude-Unpredictable), and a pair of subordinates chosen because of their divergent attitudes from one another (Attitude-Divergent), were selected for each of the managers. The Attitude-Divergent subordinates' ranks averaged in the middle of the rankings. In this way, the Degree of Acquaintance between the Judges and the Others was varied in the study. The results of the analysis of FCDACC scores were favorable to the hypothesis that empathic accuracy increases with increased acquaintance with the Other. Accuracy of predictions toward Attitude-Predictable subordinates was highest; accuracy of predictions toward Attitude-Unpredictable subordinates was lowest; and, accuracy of predictions toward Attitude-Divergent subordinates fell in between the accuracies achieved for the other two subordinate types.

Criterion (c) was investigated by the manipulation of measured discordance in two Others' attitudes. Three levels of measured discordance in the response behavior of two Others were identified. The following weights were assigned to the possible response categories on a Likert-type surface: Strongly Disagree-zero points; Disagree-one point; Agree-three points; and Strongly Agree-four points. The absolute

difference  $D$  between the responses of two Others resulted in the following response patterns:

Identical Response:  $D = 0$

Similar Response:  $D = 1$

Dissimilar Response:  $D = 2$

Maximally Dissimilar Response:  $D = 3$  and  $D = 4$

It was assumed that for the same two Others, forced-choice items requiring the identification of a Similar Response pattern would require more extrapolation or inference than would forced-choice items requiring the identification of Dissimilar or Maximally Dissimilar Response patterns.

The analysis of FCDACC Scores yielded a significant increasing trend in empathic accuracy when the measured discordance predicted was varied from Similar Response patterns to Maximally Dissimilar Response patterns. The conclusion drawn was that empathic accuracy was inversely related to the amount of inference required by the prediction situation.

## 9.5. Discussion

As pointed out in the first chapter of this dissertation, no investigation of relationships between empathic sensitivity and practical outside criterion variables was attempted. In fact, quite the opposite approach was taken. The research addressed itself to the development of an empathic accuracy measure and the evaluation of the measure through attempts to differentiate simple, generally accepted correlates of empathic sensitivity. As a consequence, no novel theoretical construct or relationship emerged from the research. In spite of this, the writer believes research in social perception was advanced through his efforts. In Chapter 2 problems confronting researchers in this area were outlined. The inability of previous researchers to eliminate methodological errors and response sets from their empathy measures had resulted in a large number of artifactual relationships and uninterpretable or meaningless findings. The writer believed a first priority attached to research on the measurement problem, and the research reported here reflects this emphasis.



The problems inherent in the measurement of empathic sensitivity were by no means solved by this research. A major objective in social perception research is the measurement of Judge-to-Judge differences in empathic behavior. The measurement approach designed in this dissertation did not lend itself to this objective. Another important objective is the investigation of the influence of individual differences in empathic ability on "success" in various occupations. This study produced negative results in its attempt to differentiate successful and unsuccessful managers as rated by their superiors on their "human relations" skills.

On the positive side, the approach to the measurement of empathic sensitivity designed for this research was successful. Empathic correlates lending themselves to "within individuals" analyses may be fruitfully studied with the FCDACC approach. It is possible the controls exercised in the forced-choice approach as applied in this research were excessive. Empirical data on the influence of various response sets in the forced-choice situation might indicate that less cumbersome procedures for item construction would be feasible. In the absence of such data, the writer was forced to "over-control" to safeguard his results.

One implication arising from the present research is the apparent adequacy of a dichotomous response surface on the attitude statements used to measure the accuracy of the Judges' predictions. This would decrease the complexity of decisions required in the preparation of the forced-choice items. With a larger number of statements in the original attitude measurement pool, a number of response sets could be handled by elimination rather than control. The point here is that the number of controls generates the requirement for an electronic computer. With a lesser number of controls, the investigator would be able to prepare the items unassisted by expensive data-processing equipments.

Finally, the writer believes the application of a forced-choice approach to empathic measurement offers excellent promise for the solution of the rather unique problems in this area. The application of a forced-choice approach made here must be viewed as a crude initial application. It is hoped that investigators will view the results obtained as sufficiently encouraging to merit the further investigation of forced-choice applications to the measurement problems in social perception research.



APPENDIX A

*Copy of Sales Attitude Questionnaire  
(Sales Attitude Report)  
and Letters to Sales Personnel  
Participating in Study*



# MINNESOTA MINING AND MANUFACTURING COMPANY

GENERAL OFFICES • 500 RUSH AVENUE • SAINT PAUL 6, MINNESOTA • TELEPHONE PR. 6-2511

March 14, 1960

To: (Name of branch sales manager)

From: (Name of divisional sales manager)

I am enclosing a letter and an attitude questionnaire which will shortly be sent to your salesmen. The letter requests participation in a research project being carried out by Mr. Richard Hatch of the University of Minnesota Graduate School. I am asking you to volunteer some of your valuable time, because I feel this research is a worthwhile opportunity for us to examine some of the beliefs prevalent in the literature on sales management. The nature of the research is such that "honesty" of opinions elicited by the questionnaire is vital; consequently, we have agreed to the University of Minnesota research policy which requires that Mr. Hatch exclusively receive and analyze the individual questionnaires. He will report findings in a manner prohibiting identification of individuals participating in the project. All results will be in the form of statistical averages.

Within our division, only two branch sales managers and their salesmen have fallen into Mr. Hatch's sample. Although salesmen participation is voluntary, it is very important that he receive 100% returns from these individuals in order that this division be equally represented with other divisions in the total sample. Mr. Hatch will contact those salesmen who have not returned their questionnaire after a reasonable length of time. This will consist of a follow-up letter mailed directly to the particular salesmen.

After the salesmen in your branch have returned their questionnaires, Mr. Hatch will contact you regarding a second phase of the research. Although salesmen will not be involved in this later stage of the project, Mr. Hatch will not be able to proceed to this stage until all of the questionnaires have been received.

I am notifying you of this project a day or so ahead of the direct mailing of materials to your salesmen so that you will be able to answer questions which may come up, especially questions concerning the safeguards being taken to guarantee the confidential treatment of individual responses to the questionnaire.

Thank you a great deal for your assistance in this research project.

Sincerely yours,

(Name of divisional sales manager)

Enclosures: 5

MARKERS OF "SCOTCH" BRAND PRESSURE-SENSITIVE ADHESIVE TAPES • "SCOTCH" BRAND ELECTRICAL PRODUCTS • "SCOTCH" BRAND MAGNETIC TAPE • "SCOTCHGUARD" BRAND STAIN REPELLER • "SCOTCHLITE" BRAND REFLECTIVE SHEETINGS • "THERMO-FAST" BRAND COPYING MACHINES AND COPY PAPER • "FASHION" BRAND FIBER • "3M" BRAND PHOTO OFFSET PLATES • "3M" ABRASIVE PAPER AND CLOTH • "3M" ADHESIVES, COATINGS AND SEALERS • "3M" HOOPING GRANTLES • "3M" CHEMICALS

UNIVERSITY OF MINNESOTA  
COLLEGE OF SCIENCE, LITERATURE, AND THE ARTS  
MINNEAPOLIS 14

March 14, 1960

DEPARTMENT OF PSYCHOLOGY

Dear Mr. (Name of sales manager)

This is a request for your cooperation in a research project. It is an opportunity for you to learn some very interesting facts about yourself and your relationship with your salesmen. The first phase concerns the attitudes of salesmen and managers toward various aspects of their job. For this reason, I would appreciate your filling out and returning the questionnaire enclosed with this letter. Please use the post-free, self-addressed envelope. Exactly thirty managers and their salesmen are being requested to participate in this research study. In the case of all participants, the questionnaires will be numbered so that only those failing to reply will have to be reminded in subsequent letters to return their questionnaires. I wish to assure you this procedure will in no way be used unethically. All returns will be handled confidentially by me at the University of Minnesota.

Two additional tasks will be requested of you in this project. Your salesmen, however, will be asked only to fill out this one questionnaire. The two additional tasks which will be requested of you will consist of ratings on your salesmen. These will be mailed to you in the next four to six weeks. I would appreciate it if you would not mention these ratings to your salesmen. They might entertain some anxiety about the research if they felt the questionnaires were connected with the ratings in any way. Such fears would be unjustified, as the safeguards employed in this project absolutely guarantee anonymity to all participants.

You will receive your own personal report of the results of this attitude survey with the averages for managers treated separately from those of salesmen. I am sure you will agree that your contribution to an average based on thirty managers will be sufficiently masked for my pledge of anonymity to be an honest one.

It is certainly unnecessary to stress the importance of obtaining the cooperation of each manager in the project. Only through your help will it be possible to learn something about sales management.

Your attention to this request is deeply appreciated.

Sincerely yours,

Richard S. Hatch



# MINNESOTA MINING AND MANUFACTURING COMPANY

GENERAL OFFICES • 300 BUSH AVENUE • SAINT PAUL 5, MINNESOTA • TELEPHONE PR. 6-9311

March 14, 1960

To: (Name of salesman)

From: R. L. Ackerberg

3M is cooperating with Mr. Hatch of the University of Minnesota Graduate School in the carrying out of a research project. I am asking for your assistance as I feel the project to be important. Sales personnel in only four branches of this division have fallen into Mr. Hatch's sample. It is therefore essential that those of you who have been included in the sample cooperate fully.

The project concerns the attitudes and opinions of salesmen. Mr. Hatch informs me that "opinion" research of this type is very difficult to do accurately. There exist two reasons for this. First, unless every individual in the sample responds, the average opinion resulting may be biased. Secondly, where the opinions concern a man's job, the man is often reluctant to reply exactly as he feels. I am writing this letter to advise you officially that this research is being conducted independently of 3M. No person in 3M will ever see any of the answers given by you in the survey. Mr. Hatch will explain to you in detail the manner in which he will report his findings. All replies will be confidential and are to be returned directly to Mr. Hatch at the University of Minnesota.

Mr. Hatch has prepared attitude statements specifically tailored for 3M salesmen in each of the divisions in his sample. I have seen the questionnaire for salesmen in this division and find that it takes less than thirty minutes to complete. There are no questions requiring written answers. After a reasonable length of time, those of you who have not returned your questionnaires will be mailed a reminder from the university. I strongly approve of the project and, although participation is voluntary, I urge your cooperation with Mr. Hatch. It is my hope that this study may lead to a better understanding of the attitudes of 3M salesmen. Mr. Hatch will report to you, individually, the results of this survey.

Thank you very much for your attention to this request.

Sincerely yours

*R. L. Ackerberg*  
R. L. Ackerberg

General Sales and Marketing Manager

Enclosures: 3

MAKERS OF "SCOTCH" BRAND PRESSURE-SENSITIVE ADHESIVE TAPES • "SCOTCH" BRAND ELECTRICAL PRODUCTS • "SCOTCH" BRAND MAGNETIC TAPE • "SCOTCHGUARD" BRAND STAIN-RESISTANT FINISHES • "SCOTCHLITE" BRAND REFLECTIVE SHEETINGS • "THERMO-FAX" BRAND COPYING MACHINES AND COPY PAPER • "SASHEIN" BRAND AEROSOL "3M" BRAND PHOTO OFFSET PLATES • "3M" ABRASIVE PAPER AND CLOTH • "3M" ADHESIVES, COATINGS AND SEALERS • "3M" ROOFING GRANULES • "3M" CHEMICALS

UNIVERSITY OF MINNESOTA  
COLLEGE OF SCIENCE, LITERATURE, AND THE ARTS  
MINNEAPOLIS 14

March 16, 1960

DEPARTMENT OF PSYCHOLOGY

Dear Mr. (Name of salesman)

Enclosed you will find an attitude questionnaire which I have designed especially for salesmen in your division of 3M. This research is concerned with the way in which salesmen look at important aspects of their job, such as the products, sales literature, their manager, training, the company and sales work in general. For this reason, I have tried to make the statements as varied as possible. Your replies on each of the statements will be averaged with those given by all of the salesmen sampled from your division. The type of finding which I will report back to you, individually, and make available to your company, will look like this:

Hypothetical Example:

In this division, management acts on recommendations from salesmen.

"Strongly Disagree"	"Disagree"	"Agree"	"Strongly Agree"
____%	____%	____%	____%

(Percent of salesmen responding in each category will be shown)

-----

You may readily see that this is a chance to "air" your opinions anonymously. You will be able to compare your own opinions with the average opinions of your fellow salesmen. At the same time, you will be voicing your opinions collectively to 3M management.

I promise you anonymity in this survey. Under no circumstances will anyone in the company ever see your answers. However, as I must have a completed questionnaire from every salesman in the sample, I am going to number the questionnaires. I will follow up on those who do not reply within one week. As you reply, your number will be crossed off the list, your responses added to the averages and your questionnaire destroyed.

Your participation in this research is very much appreciated.

Sincerely yours,

Richard S. Hatch



## SALES ATTITUDE QUESTIONNAIRE

Purpose of this survey . . .

- . . . to obtain information on the way salesmen as a group feel about various aspects of their job at 3M.

This is a secret ballot . . .

- . . . your replies are confidential.
- . . . no one in the company will ever see your answers, or get any information on you as an individual.

Please be frank and honest . . .

- . . . there are no right answers.
- . . . your own opinions are the only "right" answers.

This will take only a half hour of your time . . .

- . . . you will receive your own personal report of the results of this survey.
- . . . please fill this out and return it in the *next few days* (the stamped and addressed envelope is provided for this purpose).
- . . . all returns will be destroyed by me as soon as the data has been added to the averages.

UNIVERSITY OF MINNESOTA  
COLLEGE OF SCIENCE, LITERATURE, AND THE ARTS  
MINNEAPOLIS 14

(Follow-up letter)

DEPARTMENT OF PSYCHOLOGY

April 4, 1960

SUBJECT: SALES ATTITUDE SURVEY

TO: (Name of salesman)

Two weeks ago I mailed a Sales Attitude Questionnaire to you, tailor-made for salesmen in each of ten 3M product divisions. So far, I have no record of your returning your questionnaire to me and am writing now to give you this reminder. If you have returned the questionnaire within the last few days, please ignore this letter.

As you know, attitude surveys are being used increasingly by American industry. The survey technique is one of the most effective ways to communicate with higher management; many firms have initiated far-reaching changes on the basis of results obtained in surveys of this type. An important objective of a survey like this one is to call management's attention to areas which may need increased study and attention.

You may readily see why 100 percent returns are so necessary for the research to be completely meaningful. The impact of the results is much greater when based on a nearly unanimous response than when based on only partial returns. If a large portion of salesmen failed to respond to this survey, it could be argued that they are too disinterested to take the opportunity to express themselves; the results gained from those who do respond would be correspondingly weakened.

By responding, you also will be furthering my research and helping me to gain an accurate over-all pattern of 3M results. I hope that you will take time now to complete the enclosed duplicate questionnaire and return it to me in the stamped, self-addressed envelope.

Thanks a great deal for bearing with me on this second request. You may be assured that your help in this project is deeply appreciated. I feel sure, too, that you will actually enjoy taking advantage of this opportunity to express your opinions confidentially.

Sincerely,

Richard S. Hatch

P.S. - It may be that you feel a reluctance about filling in the questionnaire because of the identification number on the front page. As I mentioned before, this is being used strictly for follow-up purposes. If you like, just tear off the front page and return the rest of the completed questionnaire to me. This will further assure the confidential nature of your reply and still provide the research information needed by a hard-working graduate student.--R.S.H.

## REPORT ON 3M SALES ATTITUDE SURVEY

\*This is your personal copy of the results obtained from the analysis of the SALES ATTITUDE QUESTIONNAIRE returns.

\*The questionnaires were returned in April and May of 1960.

\*All figures in this report are PERCENTAGES (%). The percentages are based on returns from 318 3M salesmen sampled from ten 3M divisions. Over 99% of the salesmen contacted returned their questionnaire.

\*Following each statement are four percentages. They refer to the percentage of salesmen indicating each of the following attitudes toward the statement:

SD: Strongly Disagree

D: Disagree

A: Agree

SA: Strongly Agree

\*Due to "rounding" of percentages, the total of the four percentages may add to a little more or a little less than 100%. If the total is less than 100%, it may also be due to the failure of a small percentage of salesmen to answer the statement. For example, statement 27 on page 2 adds to 96%. Approximately 4% of the salesmen did not answer the statement.

\*In most of the questionnaires, specific statements about the products in the various divisions have been included. You will find product statements for your division on the last page (or second to the last page). The percentages for these statements are based on the number of salesmen returning questionnaires from your division only. The number of salesmen used to compute percentages is given at the top of each page. As promised, you are receiving results for every question you answered last Spring.

*\*Your cooperation in this survey was very much appreciated.*

## REPORT ON SALES ATTITUDE QUESTIONNAIRE

(Percentages based on returns of 318 salesmen sampled from ten 3M divisions)

SD = Strongly Disagree D = Disagree A = Agree SA = Strongly Agree

	% SD	% D	% A	% SA
1. I feel additional technical training on my products would be reflected in my sales volume.	03	29	49	19
2. High calls per day and many "on the spot" orders almost always identify a man with substantial sales ability.	15	44	36	05
3. My value to the division is sufficiently recognized by my sales manager.	02	10	69	19
4. If I planned to work until retirement age, I would like to stay with this Company all the time.	01	05	43	51
5. The job that the top executives are doing in this Company is excellent.	0	03	47	49
6. My sales manager lets me know where I stand regarding promotion possibilities.	09	32	47	11
7. Good fortune in territory assignment, rather than percentage of potential business sold, is the key to promotion in this division.	22	60	15	03
8. One of my weaknesses is my underestimation of potential business in my territory.	30	56	13	01
9. The real "producer" moves ahead in this division.	04	27	53	15
10. In this division, Management <i>acts</i> on the recommendations of the salesmen.	03	26	64	07
11. The method of training new salesmen in this division is well planned.	11	35	42	11
12. The standards used in rating salesmen in this division are fair.	02	11	75	09

	% SD	% D	% A	% SA
13. 3M often introduces new products too soon (or before they are ready).	15	48	27	10
14. Merchandising ideas in this division are not up to those of its competitors.	44	38	13	06
15. In this division, pay has too high a relationship with length of service.	10	50	27	12
16. Sometimes my sales manager fails to go to bat for his men.	41	40	15	04
17. In this division, there are too many policy changes.	17	69	12	02
18. My sales manager has too little authority to make decisions without going to higher management.	14	47	25	13
19. The opportunities for salesmen at 3M are as good as 20 years ago.	15	22	37	25
20. The influence of the "old pros" on the younger salesmen is a most important factor in the profits of this division.	12	43	34	11
21. My sales manager is very fair in rating me.	02	06	64	25
22. Any changes that will affect sales work are always announced long enough in advance so that I can plan accordingly.	12	40	43	05
23. I can make on the spot decisions knowing that my sales manager will always back me up.	04	30	53	13
24. Salesmen are rewarded for new ideas in this division.	03	31	56	09
25. When considering the credit of a customer, 3M should pay more attention to the recommendation of its salesman and less to D&B ratings.	17	56	21	05
26. I seriously need more training and product knowledge to be completely effective in this division.	18	49	25	07
27. The best way for the company to move its products in major promotions would be to direct the total value of all extra incentives (cash, merchandise, paid vacations) to salesmen.	12	44	27	13
28. The only practical way to use my time most profitably is to make many shorter (incomplete) calls, moving the well-established products.	60	37	02	0



	% SD	% D	% A	% SA
29. My product line is too broad.	31	60	08	02
30. The pricing of products in this division is too high compared with the prices and quality of competitors' products.	36	49	12	03
31. Considering everything, my present territory is about the right size.	08	23	58	11
32. I would describe my sales manager as understanding.	03	06	57	35
33. Opportunities for promotion in this division exist right now for the right man.	06	27	43	23
34. I need good-will give-aways for my customers to do an effective job of representing 3M.	29	59	11	01
35. I think this division would benefit if it dispensed with some of its extreme caution and put on flashier promotional efforts.	13	54	27	05
36. I get full credit from my sales manager when I go out of my way to do something "extra" for the division.	03	13	63	20
37. Getting ahead is more a matter of luck than ability.	38	55	06	01
38. I feel I am happier in my work than most other people.	0	12	56	32
39. My division greatly overestimates the potential of my territory.	12	79	07	02
40. My sales manager gives me plenty of help with my really tough accounts.	06	26	55	13
41. My sales manager treats his salesmen better than most other sales managers I hear about.	03	21	47	27
42. My sales manager considers me to be one of his "top" salesmen.	02	27	57	12
43. Everything considered, I am compensated about right for my sales work at 3M.	10	43	44	02
44. Almost every salesman in this Company is satisfied with his job.	07	36	50	05
45. A weakness of mine is a tendency to relax after a "good" quarter.	25	58	16	01

	% SD	% D	% A	% SA
46. I would rather have the possibility of more "peaks and valleys" in my income than my present compensation plan.	17	53	22	08
47. As a salesman, fringe benefits are really of less interest to me than other aspects of my compensation.	08	40	39	13
48. The salesman's job produces more tensions than any other job in the company.	08	57	31	04
49. In general, the sales management of this division are too remote to have a realistic picture of my job.	22	58	16	04
50. My product line is well balanced.	01	09	71	18
51. My sales manager thoroughly understands the problems I face on my territory.	01	18	53	24
52. The division is extremely fair in what it expects from salesmen.	01	16	68	16
53. Constructive criticism is welcomed by the sales management of this division.	04	16	66	14
54. Total dollar volume is all important in identifying a "top salesman."	15	57	21	05
55. To be successful in this division, one must go after the really big orders, even at the expense of neglecting smaller accounts, if necessary.	11	50	32	06
56. I would rather have cash incentives in major promotions than merchandise or paid vacations.	01	18	53	25
57. 3M compensates its salesmen at least as well as other companies pay for comparable sales work.	05	29	53	08
58. 3M salesmen in this division should be more fully informed as to the <i>manufacturing techniques</i> used in producing its products.	05	35	39	21
59. Delivery problems are hurting my sales.	25	53	15	06
60. I receive far more merchandising material and advertising literature than I can effectively use.	09	57	26	08
61. A 3M policy should be to withhold information on new products from its salesmen until they can take orders for these products.	32	45	14	09

	% SD	% D	% A	% SA
62. I learn more watching my manager make a presentation than discussing a presentation made by me and observed by him.	19	49	26	07
63. Calls-to-order ratio (% of presentations sold) is a fairly unbiased method of measuring a salesman's effectiveness.	17	43	35	05
64. Salesmen are made, not born.	03	08	54	35
65. When field training a new man, I am at my best.	01	22	58	16
66. A more liberal expense account would guarantee higher sales volume in my territory.	09	63	22	06
67. I need more sales gimmicks to do a really effective job.	15	74	11	0
68. My sales manager assigns first priority to problems brought to him by his salesmen.	01	17	66	15

## REPORT ON SALES ATTITUDE QUESTIONNAIRE

*(Percentages based on returns of 318 salesmen sampled from ten 3M divisions)*

**SD** = Strongly Disagree **D** = Disagree **A** = Agree **SA** = Strongly Agree

	% <b>SD</b>	% <b>D</b>	% <b>A</b>	% <b>SA</b>
I expect to become a sales manager some day.	01	12	32	55
My sales manager should consult me more often for my opinion or advice.	01	54	40	05
If my sales manager were to leave his job over-night, I would be able to take over quickly and efficiently if I had to.	05	34	42	18
When my sales manager criticizes me, I almost always deserve it.	01	10	73	16
A good sales manager should be able to sell as well as or better than his salesmen.	01	10	73	16

## REPORT ON SALES ATTITUDE QUESTIONNAIRE

*(Percentages based on returns of 43 Related Products Division salesmen)*

**SD** = Strongly Disagree **D** = Disagree **A** = Agree **SA** = Strongly Agree

	% <b>SD</b>	% <b>D</b>	% <b>A</b>	% <b>SA</b>
1. I consider myself "better than average" in my ability to convince jobbers or wholesalers that the 3M line is profitable.	0	16	60	23
2. I particularly like the kind of call where I must use my knowledge of "return on investment" and "turn-over analysis" with a tough account.	02	21	63	14
3. "Scotch-Brite" is a fast mover for me.	21	42	28	07
4. "Safety-Walk" has been a terrific addition to my line.	21	63	14	02
5. "Wetordry Trimite Paper" sells itself.	12	58	26	05
6. 3M is growing so large that the firm policy of promotion from within should be reconsidered.	37	26	26	12
7. The January price advance (less than 4% across the board) hasn't hurt my sales.	02	05	65	28
8. 3M desperately needs a professional salesman category.	02	47	35	16
9. Territory assignment rather than percentage of potential business sold is the key to promotion in this division.	16	40	35	07
10. My 3M stock option makes the fringe benefits of other companies look weak.	05	33	47	16
11. Management's policy of making me available to other divisions for promotion possibilities is just so much conversation.	05	40	42	14



*(Percentages for next five statements based on 318 3M salesmen)*

	% SD	% D	% A	% SA
I expect to become a sales manager some day.	01	12	32	55
My sales manager should consult me more often for my opinion or advice.	01	54	40	05
If my sales manager were to leave his job over-night, I would be able to take over quickly and efficiently if I had to.	05	34	42	18
When my sales manager criticizes me, I almost always deserve it.	01	10	73	16
A good sales manager should be able to sell as well as or better than his salesmen.	01	10	73	16

## REPORT ON SALES ATTITUDE QUESTIONNAIRE

*(Percentages based on returns of 14 Reflective Products-Comm'l.-salesmen)*

**SD** = Strongly Disagree **D** = Disagree **A** = Agree **SA** = Strongly Agree

	% <b>SD</b>	% <b>D</b>	% <b>A</b>	% <b>SA</b>
1. I feel additional technical training on my products would be reflected in my sales volume.	06	38	56	0
2. I think flip-charts are an important sales tool for making the really important presentations.	13	50	31	06
3. I feel the dew problem on signs is hurting my sales.	50	50	0	0
4. I would prefer a more liberal commission at the expense of a lower guaranteed salary.	13	38	19	31
5. Technical service representatives seldom appreciate my sales problems when calling with me in my territory.	13	75	13	0
6. By and large in this division, sales managers are better "managers" than they are "salesmen."	19	31	44	06

*(Percentages for next five statements based on 318 SM salesmen)*

I expect to become a sales manager some day.	01	12	32	55
My sales manager should consult me more often for my opinion or advice.	01	54	40	05
If my sales manager were to leave his job over-night, I would be able to take over quickly and efficiently if I had to.	05	34	42	18
When my sales manager criticizes me, I almost always deserve it.	01	10	73	16
A good sales manager should be able to sell as well as or better than his salesmen.	01	10	73	16

## REPORT ON SALES ATTITUDE QUESTIONNAIRE

*(Percentages based on returns of ten Electrical Products Division — OEM salesmen)*

**SD** = Strongly Disagree   **D** = Disagree   **A** = Agree   **SA** = Strongly Agree

	%	%	%	%
	<b>SD</b>	<b>D</b>	<b>A</b>	<b>SA</b>
1. The advantages of the "3 in 1" program outweigh its disadvantages.	0	0	40	60
2. I prefer to sell established tapes (like 33 or 56) and wait for the new tapes to prove themselves.	60	40	0	0

*(Percentages for next five statements based on 318 3M salesmen)*

I expect to become a sales manager some day.	01	12	32	55
My sales manager should consult me more often for my opinion or advice.	01	54	40	05
If my sales manager were to leave his job over-night, I would be able to take over quickly and efficiently if I had to.	05	34	42	18
When my sales manager criticizes me, I almost always deserve it.	01	10	73	16
A good sales manager should be able to sell as well as or better than his salesmen.	01	10	73	16

## REPORT ON SALES ATTITUDE QUESTIONNAIRE

*(Percentages based on returns from 38 Gift Wrap & Fabric Division salesmen)*

**SD** = Strongly Disagree **D** = Disagree **A** = Agree **SA** = Strongly Agree

	% <b>SD</b>	% <b>D</b>	% <b>A</b>	% <b>SA</b>
1. On the whole, I am better off as a result of the last re-organization of compensation plans in this division.	03	19	51	27
2. The change in my retail commission from 2% to 3% on <i>all</i> products really got at the heart of my past gripes about pay in this division.	0	51	38	05
3. My new potential income from increased spiffs on machines (S-10, S-19, S-71, etc.) and the leasing or releasing of bow maker floor stands was as liberal as I had reasonably hoped for.	0	05	73	19
4. My increase in monthly take-home at the expense of quarterly income was a big factor in solving my planning of personal expenses.	03	35	57	05
5. The three day 1960 sales training program was very valuable to me.	0	0	32	68

*(Percentages for next five statements based on 318 3M salesmen)*

I expect to become a sales manager some day.	01	12	32	55
My sales manager should consult me more often for my opinion or advice.	01	54	40	05
If my sales manager were to leave his job over-night, I would be able to take over quickly and efficiently if I had to.	05	34	42	18
When my sales manager criticizes me, I almost always deserve it.	01	10	73	16
A good sales manager should be able to sell as well as or better than his salesmen.	01	10	73	16

## REPORT ON SALES ATTITUDE QUESTIONNAIRE

*(Percentages based on 55 questionnaires returned by Industrial Tape salesmen)*

**SD** = Strongly Disagree   **D** = Disagree   **A** = Agree   **SA** = Strongly Agree

	%	%	%	%
	<b>SD</b>	<b>D</b>	<b>A</b>	<b>SA</b>
1. I would be better off if the total value of all loaders were placed in the consumer's hands rather than spread around as in Tape-O-Rama.	07	29	36	05
2. The PTT deal was a really profitable promotion for me.	56	33	04	0
3. The FHD deal was a really profitable promotion for me.	07	20	40	25
4. I can move more goods for the jobber (wholesaler, distributor, etc.) by calling alone than by calling with a jobber salesman.	04	62	29	02

*(Percentages for next five statements based on 318 3M salesmen)*

I expect to become a sales manager some day.	01	12	32	55
My sales manager should consult me more often for my opinion or advice.	01	54	40	05
If my sales manager were to leave his job over-night, I would be able to take over quickly and efficiently if I had to.	05	34	42	18
When my sales manager criticizes me, I almost always deserve it.	01	10	73	16
A good sales manager should be able to sell as well as or better than his salesmen.	01	10	73	16



## REPORT ON SALES ATTITUDE QUESTIONNAIRE

*(Percentages based on 77 questionnaires returned by Retail Tape salesmen)*

SD = Strongly Disagree D = Disagree A = Agree SA = Strongly Agree

	% SD	% D	% A	% SA
1. The way to sell long roll merchandise to the consumer is by means of salesmen incentives rather than dealer incentives (such as a half-price dispenser).	14	55	22	09
2. It really pays to take time to push extra profit items like freezer, masking, electrical and colored plastic tapes.	0	03	38	58
3. The Revere promotion was the best short roll promotion we've had.	01	28	38	31
4. A really important part of my job is to obtain jobber salesman cooperation.	0	04	19	77
5. The time involved in pushing #550 dusting fabric could be more profitably used on established products, at least in my territory.	14	45	32	09
6. The pricing, packaging, and advertising on #550 dusting fabric is just right.	23	55	19	01
7. It is more profitable for me to spend some extra time obtaining jobber salesman cooperation than making extra calls.	03	10	64	22

*(Percentages for next five statements based on 318 3M salesmen)*

I expect to become a sales manager some day.	01	12	32	55
My sales manager should consult me more often for my opinion or advice.	01	54	40	05
If my sales manager were to leave his job over-night, I would be able to take over quickly and efficiently if I had to.	05	34	42	18

	<sup>%</sup> SD	<sup>%</sup> D	<sup>%</sup> A	<sup>%</sup> SA
When my sales manager criticizes me, I almost always deserve it.	01	10	73	16
A good sales manager should be able to sell as well as or better than his salesmen.	01	10	73	16

## REPORT ON SALES ATTITUDE QUESTIONNAIRE

(Percentages based on returns of 18 Elec. Products-Magnetic Tape salesmen)

SD = Strongly Disagree D = Disagree A = Agree SA = Strongly Agree

	% SD	% D	% A	% SA
1. The "Scotch Brand" Tartan series promotion (revolving rack) was really profitable for me.	06	22	50	22
2. The "Scotch Brand" #311 tape with the Tenzar backing has been a big success in my territory.	06	28	22	44
3. This division <i>must</i> come to a 12 roll quantity pack for me to be most effective in my territory.	33	44	17	0
4. There is real danger of unscrupulous dealers using our empty boxes and reels to hold off-brand tapes.	22	50	17	11
5. The available listing of advertising and merchandising literature is a great help to me.	0	0	67	33
6. It would be better to send me one booklet of all ads taken out in the quarter at one time than piecemeal broadcasts of these ads.	06	28	22	44
7. There should be fewer pieces of sales literature, but all pieces available in unlimited quantity.	06	67	17	11
8. We should have deal promotions that include a consumer premium.	17	39	44	0
9. There are too many tapes in our audible range line.	17	61	06	17
10. "Scotch Brand" Video tapes should be offered as a distributor item.	33	44	22	0
11. "Scotch Brand" Instrumentation tape should be offered as a distributor item.	61	28	11	0
12. Our credit policy is too strict.	17	39	39	06

	<sup>%</sup> <b>SD</b>	<sup>%</sup> <b>D</b>	<sup>%</sup> <b>A</b>	<sup>%</sup> <b>SA</b>
13. I feel the division should specialize its salesmen into audible range and instrumentation specialists.	11	17	44	28
14. I feel computer accounts should be controlled at the point of use, not at the computer manufacturing level.	22	39	17	22

## REPORT ON SALES ATTITUDE QUESTIONNAIRE

*(Percentages based on returns of 21 salesmen sampled from M & C Division)*

**SD** = Strongly Disagree **D** = Disagree **A** = Agree **SA** = Strongly Agree

	% SD	% D	% A	% SA
1. Double coverage of accounts (distributor and myself) helps boost sales in my territory.	05	0	52	43
2. I benefited from the "Scotchrap" price-cut.	10	48	38	05
3. Number 33 Tape is fairly priced considering its quality with that of competitors.	0	05	62	33
4. I prefer to sell established tapes (like 33 or 56) and wait for the new tapes to prove themselves.	10	81	05	05
5. It really pays to push "Scotchrap."	10	24	52	14
6. Electro Mechanical products require more demonstration time than they are worth in terms of sales volume.	14	57	14	14
7. I feel #70 and #23 tapes will contribute substantially.	10	43	38	10

*(Percentages for next five statements based on 318 3M salesmen)*

I expect to become a sales manager some day.	01	12	32	55
My sales manager should consult me more often for my opinion or advice.	01	54	40	05
If my sales manager were to leave his job over-night, I would be able to take over quickly and efficiently if I had to.	05	34	42	18
When my sales manager criticizes me, I almost always deserve it.	01	10	73	16
A good sales manager should be able to sell as well as or better than his salesmen.	01	10	73	16



## REPORT ON SALES ATTITUDE QUESTIONNAIRE

*(Percentages based on returns of 16 Reflective Products-Gov't.-salesmen)*

**SD** = Strongly Disagree **D** = Disagree **A** = Agree **SA** = Strongly Agree

	% <b>SD</b>	% <b>D</b>	% <b>A</b>	% <b>SA</b>
1. I feel additional technical training on my products would be reflected in my sales volume.	14	43	36	07
2. I think flip-charts are an important sales tool for making the really important presentations.	14	64	21	0
3. I feel the dew problem on signs is hurting my sales.	29	71	0	0
4. I would prefer a more liberal commission at the expense of a lower guaranteed salary.	0	71	14	14
5. Technical service representatives seldom appreciate my sales problems when calling with me in my territory.	07	57	21	07
6. By and large in this division, sales managers are better "managers" than they are "salesmen."	0	57	29	07

*(Percentages for next five statements based on 318 3M salesmen)*

I expect to become a sales manager some day.	01	12	32	55
My sales manager should consult me more often for my opinion or advice.	01	54	40	05
If my sales manager were to leave his job over-night, I would be able to take over quickly and efficiently if I had to.	05	34	42	18
When my sales manager criticizes me, I almost always deserve it.	01	10	73	16
A good sales manager should be able to sell as well as or better than his salesmen.	01	10	73	16

APPENDIX B

*Copy of Ranking Form for Branch  
Sales Managers and  
Accompanying Letter*

UNIVERSITY OF MINNESOTA  
COLLEGE OF SCIENCE, LITERATURE, AND THE ARTS  
MINNEAPOLIS 14

DEPARTMENT OF PSYCHOLOGY

March 14, 1960

Subject: Research Project on Sales Attitudes

To: (Name of branch sales manager)

From: Richard S. Hatch

Enclosed you will find a very short rating form which will take less than five minutes of your time to fill out and return to me. As soon as I receive this form, I will send the final materials to you along with a complete explanation of the project.

I am enclosing a post-free, self-addressed envelope for your convenience.

Thank you for your prompt attention to this request.

Sincerely yours,

Richard S. Hatch

Enclosures: Rating Form  
Return Envelope

## RANKING FORM FOR SALES MANAGERS

Recently your salesmen, as well as yourself, filled out an attitude questionnaire. If you were to be asked to *predict* the opinions that each of these salesmen gave as answers to the questionnaire, you would probably be more confident about predicting for certain of the salesmen than for others. Below, you will find a list of the salesmen assigned to you. Read the names and select *the salesman* whose answers to the questionnaire you feel you could predict *most* accurately. Place a "1" before his name. Now read over the remaining names and select the salesman whose answers to the questionnaire you would feel *least* confident about predicting accurately. Place the highest number before his name. Of the remaining names, select the salesman whose answers you feel you would be able to predict *most* accurately. Place a "2" before his name. Proceed in this way until you have ranked each of the salesmen's names remaining on the list. Each salesman will have one number before his name, but no two individuals will have the same number. That's all there is to it!

Remember, the salesmen are *not* being ranked on the basis of their effectiveness, potential or behavior as salesmen. The individual ranked "1" by you *may or may not* be an effective salesman. He may be a good friend whom you know better than the others. He may be a "trouble-maker" who has always made his feelings and opinions known to you. He may be an individual who you feel is most like yourself, and, knowing your own attitudes, you feel you could predict his most easily. A manager likes to feel that he "knows" his men, but he certainly does not feel that he knows them all *equally*. The ordering, then, should be on the basis of how well you know *your* men. You should feel that you know those men *best* to whom you assign *low* numbers (1- ); and, you should feel that you know those men *least* to whom you assign *high* numbers ( - ).

Rank	Name
------	------

APPENDIX C

***Copy of Sales Attitude Report  
to Divisional Sales Managers***



## SALES ATTITUDE REPORT

This report presents the results of the Sales Attitude Survey conducted at 3M between March and June of 1960. All results are reported in the form of *percentages*. The percentages are based on the number of individuals responding in each of the following four categories: SD = Strongly Disagree; D = Disagree; A = Agree; SA = Strongly Agree.

For purposes of comparison, the percentages have been computed for a number of breakdowns within the division. At least two *branch (area)* breakdowns will be shown. These are indicated by the symbols (b1), (b2), (b3), and (b4). The data used to provide the branch percentages have been averaged together to provide a *divisional (d)* breakdown. For all ten 3M divisions in the survey, the data has been averaged together to provide a *company (c)* breakdown. Finally, the data received from the thirty branch (area) sales managers were averaged together to provide a *manager (m)* breakdown.

The following points might be of assistance in the interpretation of the report:

(1) Percentages presented by the company (c) breakdown are heavily weighted by the larger divisions. The three divisions with the largest numbers of salesmen in the sample provided over one-half of the total returns (Related Products, Industrial Trades Tape, and Retail Trades Tape Divisions).

(2) The branch (b) or area breakdowns are sometimes based on as few as six salesmen. Such results may be unreliable, especially where an attitude statement is difficult for the salesmen to interpret precisely.

(3) Attitude measurement is influenced by a large number of complex factors. The percentages reflect *only* outwardly expressed opinions. These opinions should not be considered as identical to the "underlying" opinions (often unrecognized by the individual himself) which represent the "target" of the survey. It is probably best to view the survey as a crude "barometer" of the attitude climate surrounding the salesmen at the time of the survey. For example, a bad day on the road might influence considerably the responses received from a particular salesman.

The number (N) of salesmen upon which the returns are based in each of the several breakdowns may be found on the label affixed to this page. In addition, the location of the branches (areas) is shown.

REFLECTIVE PRODUCTS DIV.	Branch (area) surveyed
Number of individuals	(b1) New York -N = 6
(d) 30 salesmen	(b2) Detroit -N = 10
(c) 318 salesmen	(b3) New York -N = 6
(m) 30 managers (10 divs.)	(b4) San Francisco -N = 8

*Note:* The percentages given in the report for statement #73 only are incorrect. This resulted from a printer duplication of the identical percentages for statement #72. The correct company (c) breakdown is: SD = 1%; D = 21%; A = 46%; SA = 32%.

*Note:* The percentage of salesmen returning questionnaires was either 99% or 100% for each division in the sample. Of 320 salesmen sampled, only two failed to return questionnaires! Consequently, the data presented in this report may be considered unbiased from the standpoint of "selective" returns.

# REPORT ON SALES ATTITUDE QUESTIONNAIRE\* REFLECTIVE PRODUCTS

	Percentage Response						Percentage Response					
	SD			SA			SD			SA		
	D	A	SA	D	A	SA	D	A	SA	D	A	SA
1. I feel additional technical training on my products would be reflected in my sales volume.	(d)	3	43	43	10	(b1)	0	(b1)	0	33	67	0
	(c)	3	29	49	19	(b2)	10	(b2)	10	40	50	0
	(m)	3	50	37	10	(b3)	0	(b3)	0	67	33	0
						(b4)	0	(b4)	0	38	25	38
2. High calls per day and many "on the spot" orders almost always identify a man with substantial sales ability.	(d)	30	47	23	0	(b1)	33	(b1)	33	50	17	0
	(c)	15	44	36	05	(b2)	40	(b2)	40	40	20	0
	(m)	7	17	47	30	(b3)	17	(b3)	17	67	17	0
						(b4)	25	(b4)	25	38	38	0
3. My value to the division is sufficiently recognized by my sales manager.	(d)	0	17	73	10	(b1)	0	(b1)	0	33	67	0
	(c)	2	10	69	19	(b2)	0	(b2)	0	20	60	20
	(m)	0	13	53	33	(b3)	0	(b3)	0	0	83	17
						(b4)	0	(b4)	0	13	88	0
4. If I planned to work until retirement age, I would like to stay with this Company all the time.	(d)	7	17	37	40	(b1)	0	(b1)	0	17	33	50
	(c)	1	5	43	51	(b2)	10	(b2)	10	20	40	30
	(m)	0	0	17	83	(b3)	17	(b3)	17	0	33	50
						(b4)	0	(b4)	0	25	38	38

\*The report to Branch Sales Managers is identical to this with the (b) breakdowns removed.

	Percentage Response				Percentage Response			
	SD		D		SD		D	
		SA		A		SA		A
5. The job that the top executives are doing in this Company is excellent.	(d) 0	47	3	47	(b1) 0	47	17	33
	(c) 0	49	3	47	(b2) 0	49	0	60
	(m) 0	77	3	20	(b3) 0	77	0	33
					(b4) 0		0	50
6. My sales manager lets me know where I stand regarding promotion possibilities.	(d) 10	60	27	60	(b1) 0	60	33	67
	(c) 9	47	32	47	(b2) 10	47	40	40
	(m) 7	43	40	43	(b3) 17	43	0	83
					(b4) 13		25	63
7. Good fortune in territory assignment, rather than percentage of potential business sold, is the key to promotion in this division.	(d) 20	17	57	17	(b1) 0	17	100	0
	(c) 22	15	60	15	(b2) 20	15	70	10
	(m) 40	13	47	13	(b3) 33	13	33	17
					(b4) 25		25	38
8. One of my weaknesses is my underestimation of potential business in my territory.	(d) 37	0	60	0	(b1) 33	0	67	0
	(c) 30	13	56	13	(b2) 40	13	50	0
	(m) 40	07	53	07	(b3) 67	07	33	0
					(b4) 13		88	0
9. The real "producer" moves ahead in this division.	(d) 3	50	27	50	(b1) 0	50	50	17
	(c) 4	53	27	53	(b2) 0	53	20	60
	(m) 0	47	13	47	(b3) 17	47	17	50
					(b4) 0		25	63

10. In this division, Management acts on the recommendations of the salesmen.	(d) 0	47	43	7	(b1) 0	50	50	0
	(c) 3	26	64	7	(b2) 0	50	40	10
	(m) 3	20	63	13	(b3) 0	50	50	0
					(b4) 0	38	38	13
11. The method of training new salesmen in this division is well planned.	(d) 3	30	53	13	(b1) 0	33	50	17
	(c) 11	35	42	11	(b2) 10	40	40	10
	(m) 7	33	43	17	(b3) 0	17	67	17
					(b4) 0	25	63	13
12. The standards used in rating salesmen in this division are fair.	(d) 0	20	70	7	(b1) 0	33	67	0
	(c) 2	11	75	9	(b2) 0	20	70	10
	(m) 0	7	57	37	(b3) 0	17	67	0
					(b4) 0	13	75	13
13. 3M often introduces new products too soon (or before they are ready).	(d) 17	47	23	13	(b1) 33	67	0	0
	(c) 15	48	27	10	(b2) 30	50	10	10
	(m) 17	37	33	13	(b3) 0	33	50	17
					(b4) 0	38	38	25
14. Merchandising ideas in this division are not up to those of its competitors.	(d) 23	57	17	3	(b1) 33	50	0	17
	(c) 44	38	13	6	(b2) 20	70	10	0
	(m) 40	43	13	3	(b3) 33	50	17	0
					(b4) 13	50	38	0
15. In this division, pay has too high a relationship with length of service.	(d) 10	63	23	3	(b1) 0	83	17	0
	(c) 10	50	27	12	(b2) 0	90	0	10
	(m) 13	53	23	10	(b3) 17	33	50	0
					(b4) 25	38	38	0



	Percentage Response				Percentage Response			
	SD		A		SD		A	
	D	A	D	SA	D	A	D	SA
16. Sometimes my sales manager fails to go to bat for his men.	(d) 20 (c) 41 (m) 30	40 15 33	37 4 33	3 4 3	(b1) 33 (b2) 30 (b3) 0 (b4) 13	17 50 67 25	50 20 33 50	0 0 0 13
17. In this division, there are too many policy changes.	(d) 10 (c) 17 (m) 13	70 69 67	17 12 20	3 2 0	(b1) 17 (b2) 20 (b3) 0 (b4) 0	50 80 50 88	33 0 50 0	0 0 0 13
18. My sales manager has too little authority to make decisions without going to higher management.	(d) 7 (c) 14 (m) 13	40 47 43	50 25 27	3 13 17	(b1) 17 (b2) 10 (b3) 0 (b4) 0	17 40 33 63	67 50 50 38	0 0 17 0
19. The opportunities for salesmen at 3M are as good as 20 years ago.	(d) 7 (c) 15 (m) 0	27 22 13	47 37 37	17 25 50	(b1) 0 (b2) 0 (b3) 17 (b4) 13	0 20 33 50	83 60 33 13	17 20 0 25
20. The influence of the "old pros" on the younger salesmen is a most important factor in the profits of this division.	(d) 10 (c) 12 (m) 7	53 43 37	27 34 47	10 11 10	(b1) 17 (b2) 10 (b3) 0 (b4) 13	50 30 67 75	33 50 17 0	0 10 17 13

21. My sales manager is very fair in rating me.
- |     |   |    |    |    |      |   |    |    |    |
|-----|---|----|----|----|------|---|----|----|----|
| (d) | 0 | 10 | 67 | 20 | (b1) | 0 | 17 | 50 | 33 |
| (c) | 2 | 6  | 64 | 25 | (b2) | 0 | 10 | 70 | 20 |
| (m) | 0 | 10 | 67 | 17 | (b3) | 0 | 0  | 83 | 0  |
|     |   |    |    |    | (b4) | 0 | 13 | 63 | 25 |
22. Any changes that will affect sales work are always announced long enough in advance so that I can plan accordingly.
- |     |    |    |    |    |      |    |    |    |   |
|-----|----|----|----|----|------|----|----|----|---|
| (d) | 27 | 30 | 43 | 0  | (b1) | 17 | 17 | 67 | 0 |
| (c) | 12 | 40 | 43 | 5  | (b2) | 0  | 40 | 60 | 0 |
| (m) | 17 | 40 | 30 | 13 | (b3) | 67 | 17 | 17 | 0 |
|     |    |    |    |    | (b4) | 38 | 38 | 25 | 0 |
23. I can make on the spot decisions knowing that my sales manager will always back me up.
- |     |    |    |    |    |      |    |    |    |   |
|-----|----|----|----|----|------|----|----|----|---|
| (d) | 7  | 30 | 63 | 0  | (b1) | 17 | 17 | 67 | 0 |
| (c) | 4  | 30 | 53 | 13 | (b2) | 0  | 30 | 70 | 0 |
| (m) | 10 | 27 | 43 | 20 | (b3) | 0  | 33 | 67 | 0 |
|     |    |    |    |    | (b4) | 13 | 38 | 50 | 0 |
24. Salesmen are rewarded for new ideas in this division.
- |     |   |    |    |    |      |    |    |    |    |
|-----|---|----|----|----|------|----|----|----|----|
| (d) | 3 | 37 | 50 | 10 | (b1) | 0  | 50 | 50 | 0  |
| (c) | 3 | 31 | 56 | 9  | (b2) | 10 | 30 | 40 | 20 |
| (m) | 0 | 20 | 57 | 23 | (b3) | 0  | 33 | 67 | 0  |
|     |   |    |    |    | (b4) | 0  | 38 | 50 | 13 |
25. When considering the credit of a customer, 3M should pay more attention to the recommendation of its salesman and less to D&B ratings.
- |     |    |    |    |   |      |    |    |    |    |
|-----|----|----|----|---|------|----|----|----|----|
| (d) | 13 | 70 | 13 | 3 | (b1) | 17 | 83 | 0  | 0  |
| (c) | 17 | 56 | 21 | 5 | (b2) | 10 | 70 | 10 | 10 |
| (m) | 27 | 57 | 10 | 3 | (b3) | 33 | 50 | 17 | 0  |
|     |    |    |    |   | (b4) | 0  | 75 | 25 | 0  |
26. I seriously need more training and product knowledge to be completely effective in this division.
- |     |    |    |    |   |      |    |    |    |    |
|-----|----|----|----|---|------|----|----|----|----|
| (d) | 27 | 50 | 20 | 3 | (b1) | 33 | 67 | 0  | 0  |
| (c) | 18 | 49 | 25 | 7 | (b2) | 30 | 50 | 10 | 10 |
| (m) | 17 | 67 | 17 | 0 | (b3) | 17 | 50 | 33 | 0  |
|     |    |    |    |   | (b4) | 25 | 38 | 38 | 0  |

	Percentage Response				Percentage Response			
	SD		A		SD		A	
	SD	D	A	SA	SD	D	A	SA
27. The best way for the company to move its products in major promotions would be to direct the total value of all extra incentives (cash, merchandise, paid vacations) to salesmen.	(d) 10	50	23	17	(b1) 17	50	17	17
	(c) 12	44	27	13	(b2) 10	50	30	10
	(m) 27	47	10	10	(b3) 0	50	17	33
					(b4) 13	50	25	13
28. The only practical way to use my time most profitably is to make many shorter (incomplete) calls, moving the well-established products.	(d) 57	40	3	0	(b1) 50	50	0	0
	(c) 60	37	2	0	(b2) 60	30	10	0
	(m) 60	40	0	0	(b3) 67	33	0	0
					(b4) 50	50	0	0
29. My product line is too broad.	(d) 30	67	0	3	(b1) 17	83	0	0
	(c) 31	60	8	2	(b2) 50	50	0	0
	(m) 37	60	3	0	(b3) 17	83	0	0
					(b4) 25	63	0	13
30. The pricing of products in this division is too high compared with the prices and quality of competitors' products.	(d) 33	47	20	0	(b1) 50	50	0	0
	(c) 36	49	12	3	(b2) 30	20	50	0
	(m) 33	47	17	3	(b3) 33	50	17	0
					(b4) 25	75	0	0
31. Considering everything, my present territory is about the right size.	(d) 10	23	53	13	(b1) 0	17	67	17
	(c) 8	23	58	11	(b2) 20	10	70	0
	(m) 07	10	67	17	(b3) 0	33	33	33
					(b4) 13	38	38	13

32. I would describe my sales manager as understanding.

(d)	0	10	67	23	(b1)	0	0	67	33
(c)	3	6	57	35	(b2)	0	20	50	30
(m)	0	33	33	33	(b3)	0	0	83	17
					(b4)	0	13	75	13

33. Opportunities for promotion in this division exist right now for the right man.

(d)	0	23	57	20	(b1)	0	17	50	33
(c)	6	27	43	23	(b2)	0	20	60	20
(m)	0	20	40	40	(b3)	0	50	17	33
					(b4)	0	13	88	0

34. I need good-will give-aways for my customers to do an effective job of representing 3M.

(d)	17	63	20	0	(b1)	17	67	17	0
(c)	29	59	11	1	(b2)	20	70	10	0
(m)	33	63	3	0	(b3)	17	50	33	0
					(b4)	13	63	25	0

35. I think this division would benefit if it dispensed with some of its extreme caution and put on flashier promotional efforts.

(d)	3	70	27	0	(b1)	0	100	0	0
(c)	13	54	27	5	(b2)	10	70	20	0
(m)	27	37	33	03	(b3)	0	67	33	0
					(b4)	0	50	50	0

36. I get full credit from my sales manager when I go out of my way to do something "extra" for the division.

(d)	3	10	77	7	(b1)	0	17	83	0
(c)	3	13	63	20	(b2)	0	20	70	10
(m)	3	27	50	20	(b3)	0	0	67	17
					(b4)	13	0	88	0

37. Getting ahead is more a matter of luck than ability.

(d)	37	60	3	0	(b1)	50	50	0	0
(c)	38	55	6	1	(b2)	40	60	0	0
(m)	57	40	3	0	(b3)	33	67	0	0
					(b4)	25	63	13	0

	Percentage Response				Percentage Response			
	SD		D A		SD		D A	
	SA	SA	SD	SA	SD	SA	SD	SA
38. I feel I am happier in my work than most other people.	(d) 0	20	60	20	(b1) 0	0	100	0
	(c) 0	12	56	32	(b2) 0	20	50	30
	(m) 0	3	53	43	(b3) 0	33	50	17
					(b4) 0	25	50	25
39. My division greatly overestimates the potential of my territory.	(d) 10	70	20	0	(b1) 0	100	0	0
	(c) 12	79	7	2	(b2) 20	80	0	0
	(m) 20	73	3	3	(b3) 0	33	67	0
					(b4) 13	63	25	0
40. My sales manager gives me plenty of help with my really tough accounts.	(d) 7	40	47	7	(b1) 0	50	33	17
	(c) 6	26	55	13	(b2) 10	20	70	0
	(m) 10	30	50	10	(b3) 0	33	50	17
					(b4) 13	63	25	0
41. My sales manager treats his salesmen better than most other sales managers I hear about.	(d) 0	40	43	10	(b1) 0	17	83	0
	(c) 3	21	47	27	(b2) 0	30	50	20
	(m) 3	20	47	30	(b3) 0	50	17	17
					(b4) 0	63	25	0
42. My sales manager considers me to be one of his "top" salesmen.	(d) 0	33	57	3	(b1) 0	17	67	0
	(c) 2	27	57	12	(b2) 0	50	40	10
	(m) 0	10	77	10	(b3) 0	17	83	0
					(b4) 0	38	50	0



43. Everything considered, I am compensated about right for my sales work at 3M.
- |     |    |    |    |   |      |    |    |    |   |
|-----|----|----|----|---|------|----|----|----|---|
| (d) | 13 | 40 | 47 | 0 | (b1) | 17 | 33 | 50 | 0 |
| (c) | 10 | 43 | 44 | 2 | (b2) | 10 | 20 | 70 | 0 |
| (m) | 7  | 47 | 43 | 3 | (b3) | 17 | 50 | 33 | 0 |
|     |    |    |    |   | (b4) | 13 | 63 | 25 | 0 |
44. Almost every salesman in this Company is satisfied with his job.
- |     |    |    |    |   |      |    |    |    |   |
|-----|----|----|----|---|------|----|----|----|---|
| (d) | 7  | 43 | 50 | 0 | (b1) | 0  | 50 | 50 | 0 |
| (c) | 7  | 36 | 50 | 5 | (b2) | 10 | 50 | 40 | 0 |
| (m) | 10 | 37 | 50 | 3 | (b3) | 17 | 50 | 33 | 0 |
|     |    |    |    |   | (b4) | 0  | 25 | 75 | 0 |
45. A weakness of mine is a tendency to relax after a "good" quarter.
- |     |    |    |    |   |      |    |     |    |   |
|-----|----|----|----|---|------|----|-----|----|---|
| (d) | 10 | 80 | 10 | 0 | (b1) | 0  | 100 | 0  | 0 |
| (c) | 25 | 58 | 16 | 1 | (b2) | 0  | 90  | 10 | 0 |
| (m) | 40 | 57 | 3  | 0 | (b3) | 33 | 50  | 17 | 0 |
|     |    |    |    |   | (b4) | 13 | 75  | 13 | 0 |
46. I would rather have the possibility of more "peaks and valleys" in my income than my present compensation plan.
- |     |    |    |    |    |      |    |    |    |    |
|-----|----|----|----|----|------|----|----|----|----|
| (d) | 7  | 67 | 13 | 13 | (b1) | 17 | 67 | 0  | 17 |
| (c) | 17 | 53 | 22 | 8  | (b2) | 0  | 70 | 10 | 20 |
| (m) | 23 | 60 | 13 | 3  | (b3) | 17 | 50 | 17 | 17 |
|     |    |    |    |    | (b4) | 0  | 75 | 25 | 0  |
47. As a salesman, fringe benefits are really of less interest to me than other aspects of my compensation.
- |     |   |    |    |    |      |   |    |    |    |
|-----|---|----|----|----|------|---|----|----|----|
| (d) | 0 | 37 | 37 | 27 | (b1) | 0 | 0  | 50 | 50 |
| (c) | 8 | 40 | 39 | 13 | (b2) | 0 | 30 | 50 | 20 |
| (m) | 7 | 43 | 43 | 7  | (b3) | 0 | 67 | 17 | 17 |
|     |   |    |    |    | (b4) | 0 | 50 | 25 | 25 |
48. The salesman's job produces more tensions than any other job in the company.
- |     |    |    |    |   |      |    |    |    |    |
|-----|----|----|----|---|------|----|----|----|----|
| (d) | 3  | 53 | 40 | 3 | (b1) | 17 | 67 | 17 | 0  |
| (c) | 8  | 57 | 31 | 4 | (b2) | 0  | 60 | 30 | 10 |
| (m) | 17 | 53 | 23 | 7 | (b3) | 0  | 33 | 67 | 0  |
|     |    |    |    |   | (b4) | 0  | 50 | 50 | 0  |

	Percentage Response				Percentage Response			
	SD		A		SD		A	
	SD	D	A	SA	SD	D	A	SA
49. In general, the sales management of this division is too remote to have a realistic picture of my job.	(d) 10 (c) 22 (m) 23	57 58 47	27 16 27	7 4 3	(b1) 33 (b2) 10 (b3) 0 (b4) 0	50 80 50 38	17 10 33 50	0 0 17 13
50. My product line is well balanced.	(d) 0 (c) 1 (m) 0	13 9 17	80 71 70	7 18 13	(b1) 0 (b2) 0 (b3) 0 (b4) 0	17 10 0 25	83 80 100 63	0 10 0 13
51. My sales manager thoroughly understands the problems I face on my territory.	(d) 0 (c) 1 (m) 7	33 18 17	50 58 53	17 24 23	(b1) 0 (b2) 0 (b3) 0 (b4) 0	33 10 50 50	50 60 33 50	17 30 17 0
52. The division is extremely fair in what it expects from salesmen.	(d) 0 (c) 1 (m) 3	30 16 10	63 68 60	7 16 27	(b1) 0 (b2) 0 (b3) 0 (b4) 0	33 20 67 13	67 60 33 88	0 20 0 0
53. Constructive criticism is welcomed by the sales management of this division.	(d) 3 (c) 4 (m) 10	23 16 20	60 66 50	10 14 20	(b1) 0 (b2) 0 (b3) 0 (b4) 13	33 20 33 13	50 60 50 75	17 20 0 0

54. Total dollar volume is all important in identifying a "top salesman."	(d) 20	37	27	13	(b1) 0	50	33	17
	(c) 15	57	21	5	(b2) 20	40	30	0
	(m) 23	57	17	3	(b3) 33	33	0	33
					(b4) 25	25	38	13
55. To be successful in this division, one must go after the really big orders, even at the expense of neglecting smaller accounts, if necessary.	(d) 10	37	40	13	(b1) 0	50	17	33
	(c) 11	50	32	6	(b2) 10	40	50	0
	(m) 23	43	30	3	(b3) 17	33	50	0
					(b4) 13	25	38	25
56. I would rather have cash incentives in major promotions than merchandise or paid vacations.	(d) 0	10	57	33	(b1) 0	0	50	50
	(c) 1	18	53	25	(b2) 0	20	50	30
	(m) 0	33	37	23	(b3) 0	0	67	33
					(b4) 0	13	63	25
57. 3M compensates its salesmen at least as well as other companies pay for comparable sales work.	(d) 3	20	70	7	(b1) 0	0	83	17
	(c) 5	29	58	8	(b2) 0	10	80	10
	(m) 10	17	60	13	(b3) 17	33	50	0
					(b4) 0	38	63	0
58. 3M salesmen in this division should be more fully informed as to the <i>manufacturing techniques</i> used in producing its products.	(d) 3	53	27	17	(b1) 0	67	0	33
	(c) 5	35	39	21	(b2) 0	70	20	10
	(m) 7	57	27	10	(b3) 17	50	17	17
					(b4) 0	25	63	13
59. Delivery problems are hurting my sales.	(d) 10	43	27	20	(b1) 17	33	33	17
	(c) 25	53	15	6	(b2) 20	50	20	10
	(m) 23	37	30	10	(b3) 0	33	33	33
					(b4) 0	50	25	24

	Percentage Response				Percentage Response			
	SD		A		SD		A	
	D	SA	D	SA	D	SA	D	SA
60. I receive far more merchandising material and advertising literature than I can effectively use.	(d) 10	60	23	7	(b1) 0	100	0	0
	(c) 9	57	26	8	(b2) 20	70	10	0
	(m) 20	73	3	3	(b3) 0	50	33	17
					(b4) 13	25	50	13
61. A 3M policy should be to withhold information on new products from its salesmen until they can take orders for these products.	(d) 10	37	40	13	(b1) 17	33	33	17
	(c) 32	45	14	9	(b2) 10	40	40	10
	(m) 30	30	23	17	(b3) 0	67	0	33
					(b4) 13	13	75	0
62. I learn more watching my manager make a presentation than discussing a presentation made by me and observed by him.	(d) 23	40	27	10	(b1) 33	17	50	0
	(c) 19	49	26	7	(b2) 20	20	40	20
	(m) 10	57	30	3	(b3) 17	83	0	0
					(b4) 25	50	13	13
63. Calls-to-order ratio (% of presentations sold) is a fairly unbiased method of measuring a salesman's effectiveness.	(d) 27	37	33	3	(b1) 17	50	33	0
	(c) 17	43	35	5	(b2) 30	20	50	0
	(m) 3	23	60	13	(b3) 33	50	17	0
					(b4) 25	38	25	13
64. Salesmen are made, not born.	(d) 7	3	53	37	(b1) 17	0	50	33
	(c) 3	8	54	35	(b2) 10	0	50	40
	(m) 7	7	67	20	(b3) 0	17	50	33
					(b4) 0	0	63	38

65. When field training a new man, I am at my best.	(d) 0	30	53	13	(b1) 0	0	83	17
	(c) 1	22	58	16	(b2) 0	20	60	20
	(m) 0	23	57	20	(b3) 0	50	17	17
					(b4) 0	50	50	0
66. A more liberal expense account would guarantee higher sales volume in my territory.	(d) 7	67	23	3	(b1) 0	100	0	0
	(c) 9	63	22	6	(b2) 10	60	30	0
	(m) 17	53	30	0	(b3) 0	50	50	0
					(b4) 13	63	13	13
67. I need more sales gimmicks to do a really effective job.	(d) 20	60	20	0	(b1) 50	33	17	0
	(c) 15	74	11	0	(b2) 20	70	10	0
	(m) 7	77	13	3	(b3) 0	67	33	0
					(b4) 13	63	25	0
68. My sales manager assigns first priority to problems brought to him by his salesmen.	(d) 3	37	50	7	(b1) 0	17	67	17
	(c) 1	17	66	15	(b2) 0	50	40	10
	(m) 0	30	57	13	(b3) 0	33	50	0
					(b4) 13	38	50	0
69. I expect to become a sales manager some day.	(d) 3	10	37	50	(b1) 0	17	0	83
	(c) 1	12	32	55	(b2) 10	0	40	50
	(m) 0	3	47	43	(b3) 0	17	50	33
					(b4) 0	13	50	38
70. My sales manager should consult me more often for my opinion or advice.	(d) 0	50	40	7	(b1) 0	67	33	0
	(c) 1	54	40	5	(b2) 0	40	60	0
	(m) 0	37	53	10	(b3) 0	67	17	0
					(b4) 0	38	38	25



	Percentage Response				Percentage Response			
	SD		SA		SD		SA	
	D	A	D	A	D	A	D	A
71. If my sales manager were to leave his job over-night, I would be able to take over quickly and efficiently if I had to.	(d) 3 (c) 5 (m) 0	17 50 34 42 7 57	30 18 37	(b1) 0 (b2) 10 (b3) 0 (b4) 0	17 50 20 30 0 50 25 75	33 40 50 0		
72. When my sales manager criticizes me, I almost always deserve it.	(d) 0 (c) 1 (m) 3	13 70 10 73 20 63	10 16 13	(b1) 0 (b2) 0 (b3) 0 (b4) 0	0 100 10 70 17 50 25 63	0 20 17 0		
73. A good sales manager should be able to sell as well as or better than his salesmen.	(d) 0 (c) 1 (m) 3	13 70 10 73 20 63	10 16 13	(b1) 0 (b2) 0 (b3) 0 (b4) 0	0 100 10 70 17 50 25 63	0 20 17 0		
1. I feel additional technical training on my products would be reflected in my sales volume.	(d) 10 (c) (m)	40 47	3	(b1) 0 (b2) 10 (b3) 0 (b4) 25	33 67 40 50 67 33 25 38	0 0 0 13		
2. I think flip-charts are an important sales tool for making the really important presentations.	(d) 13 (c) (m)	57 27	3	(b1) 0 (b2) 20 (b3) 17 (b4) 13	67 33 40 30 67 17 63 25	0 10 0 0		

3. I feel the dew problem on signs is hurting my sales.	(d)	40	60	0	0	(b1)	67	33	0	0
	(c)					(b2)	40	60	0	0
	(m)					(b3)	17	83	0	0
						(b4)	38	63	0	0
4. I would prefer a more liberal commission at the expense of a lower guaranteed salary.	(d)	7	53	17	23	(b1)	33	17	17	33
	(c)					(b2)	0	50	20	30
	(m)					(b3)	0	67	17	17
						(b4)	0	75	13	13
5. Technical service representatives seldom appreciate my sales problems when calling with me in my territory.	(d)	10	67	17	3	(b1)	17	83	0	0
	(c)					(b2)	10	70	20	0
	(m)					(b3)	0	50	33	0
						(b4)	13	63	13	13
6. By and large in this division, sales managers are better "managers" than they are "salesmen."	(d)	10	43	37	7	(b1)	0	67	33	0
	(c)					(b2)	30	10	50	10
	(m)					(b3)	0	50	17	17
						(b4)	0	63	38	0

APPENDIX D

*Copy of Individual  
Empathy Test  
and Accompanying Letter*

UNIVERSITY OF MINNESOTA  
COLLEGE OF SCIENCE, LITERATURE, AND THE ARTS  
MINNEAPOLIS 14

DEPARTMENT OF PSYCHOLOGY

July 25, 1960

Dear Mr. (Name of Sales Manager)

The attached Empathy Inventory is the last and most important step in my research project on sales attitudes. Over 350 salesmen and sales managers have participated in the research. In this particular phase of the project only thirty sales managers will participate. You may readily understand my appreciation of your generous cooperation in the study.

This set of materials is very confidential for the reason that the information upon which it is based represents a confidence placed in me by the salesmen of 3M in returning the Sales Attitude Questionnaires. You will realize in filling out the inventory that I have not violated that confidence, as you are not given any information in the inventory that could lead you to any more than a guess as to the attitudes of certain of your subordinate salesman. I will be the only person to evaluate your predictions on the inventory, and you will only be told how well you have done in comparison with the average of the thirty managers participating in the research. From this you will not be able to know on which of the predictions you were accurate, nor on how many you were accurate. Nevertheless, I feel you will share my serious concern over the possible misunderstandings which might arise if the nature of the inventory were to be revealed to the salesmen participating in the first phase of the study. It would be difficult to assure them that their responses to the original questionnaire had not been obtained under misleading circumstances and their trust at least partially violated. I very much appreciate your cooperation in the confidential nature of this research project.

Sometime this fall you may expect the final report on the research. You will receive a report on the attitude survey along with a special report to sales managers participating in this last phase of the research. The salesmen will each receive a report on the attitude survey only. The percentages for this attitude survey report will be based on a company-wide basis. It has been decided that the nature of the statements in the original questionnaire is such as to require rather cautious interpretation. It would not be reasonable to report to the salesmen on a divisional basis as originally planned, due to possible misinterpretations of the data on the part of the salesmen. Such a report might serve to embarrass some of the managers and serve no strictly constructive purpose. Incidentally, your performance on this inventory will be regarded as confidential. No one in the company will be given your score. A report will be made to the general sales managers on the average performance of the thirty managers participating in the Empathy phase, and you will receive a

-2-

copy of this report for your personal files. As mentioned above, I will give you your score so that you may compare your performance with that of the other managers in the study. You will not, however, be given their individual scores - nor will they be given yours.

It may be of interest to know that this inventory was individually prepared for you with the assistance of an electronic computer (UNIVAC) utilizing data supplied by your salesmen. The computer made several hundred thousand comparisons in the selection of statements for the thirty Empathy Inventories. Every possible statistical criterion was met in an effort to prepare an inventory for you which would be equal in all respects to those prepared for the other sales managers. Nevertheless, the psychological task which you are asked to solve has never been presented to sales managers before, and you will find it involves a particularly complex judgement on your part. In short, it will require serious concentration for you to do well on the inventory. Be sure to take as much time as you need to do a good job. Your conscientious answering of the inventory will contribute to a better understanding of the value of "empathy" in sales management.

Thank you once again for your efforts in cooperating on my thesis research

Sincerely,

Richard S. Hatch



## INSTRUCTIONS FOR INDIVIDUAL EMPATHY INVENTORY

In this inventory you are being asked to make predictions about the attitudes of some of your subordinate salesmen. "Empathy" has been defined as "the ability to place oneself in another person's shoes." Please read the instructions carefully. You will find the inventory difficult but challenging. When you have finished this section do not forget to complete the short yellow section at the back of this booklet.

Each item will consist of two statements. With each item you will be given the names of two of your subordinate salesmen. The two names will appear in alphabetical order. You will recognize the statements as those answered by you and your salesmen in the Sales Attitude Questionnaire a few months ago. In the questionnaire each statement allowed you to make one of four possible responses: *Strongly Disagree*, *Disagree*, *Agree*, or *Strongly Agree*. Where two of your salesmen checked the *same* response to a particular statement, for example, "Disagree," they were considered to hold *identical* opinions on that statement. If their responses were *not identical*, for example, where one salesman responded "Agree" and another responded "Strongly Agree," they were considered to hold *divergent* opinions on that particular statement.

On one of the two statements making up each item in this inventory the two salesmen hold *identical* opinions. On the other of the two statements the two salesmen hold *divergent* opinions. Your task is to identify the statement yielding *divergent* opinions on the part of the two salesmen named with each item.

After selecting the statement upon which you feel the two salesmen differ, one from the other, in their opinions, check the box following that statement. Once you have selected the statement, you are to predict the *direction* of the difference in attitudes on the part of the two salesmen. To do this, you must decide which of the two salesmen holds an opinion *closest* to *Strongly Agree* on the statement. When you have done this, check the space following the letter (A) or (B) associated with the name you have chosen.

Notice that it is not necessary for you to feel that *either* of the salesmen "Strongly Agree" or even "Agree" with the statement. It may be that you have correctly selected a statement to which one of the salesmen has responded "Strongly Disagree" while the other has responded "Disagree." In such a case you would check the space following the letter associated with the name of the salesman who you feel responded "Disagree." His response is *closest* to a response of *Strongly Agree*. Remember, you are predicting the direction of the difference in attitudes only for the *one* statement in each pair which you have

already selected as yielding *divergent* opinions for the two salesmen. On the other statement in each pair of statements you have predicted the two salesmen to hold *identical* opinions.

*Hypothetical Example:*

(A) Eagerness (B) Sadenough  
 The 3M name is an asset in my sales work. ☐ (A)\_\_\_(B)\_\_\_  
 I am happier in my work than most other people. ☐

In this example you might have predicted that both salesmen hold identical opinions on the first statement. On the second statement you probably would predict Sadenough's response to be "Disagree," and Eagerness's response to be at least "Agree." Consequently you would have checked the box following the second statement. You would then have checked the space following the letter associated with the salesman whose attitude on the statement was closest to *Strongly Agree*, or letter (A).

**NOTE: DO NOT SKIP ANY ITEMS. A GUESS WILL BE AS OFTEN RIGHT AS WRONG!**

*Select the statement upon which (A) and (B) differ in their attitudes.*

Item 1 (A) Meck (B) Rushing  
 I would rather have the possibility of more "peaks and valleys" in my income than my present compensation plan. ☒ (A)\_\_\_(B)☒  
 In this division, there are too many policy changes. ☐  
 Item 2 (A) Meck (B) Rushing  
 My sales manager is very fair in rating me. ☒ (A)☒(B)\_\_\_  
 To be successful in this division, one must go after the really big orders, even at the expense of neglecting smaller accounts, if necessary. ☐

Item 3 (A) Meck (B) Rushing

My sales manager assigns first priority to problems brought to him by his salesmen.



(A)    (B) ✓

My sales manager should consult me more often for my opinion or advice.



Item 4 (A) Meck (B) Rushing

I expect to become a sales manager some day.



(A)    (B) ✓

A good sales manager should be able to sell as well as or better than his salesmen.



Item 5 (A) Meck (B) Rushing

Merchandising ideas in this division are not up to those of its competitors.



(A)    (B) ✓

I seriously need more training and product knowledge to be completely effective in this division.



Item 6 (A) Meck (B) Rushing

My value to the division is sufficiently recognized by my sales manager.



(A) ✓ (B)   

The division is extremely fair in what it expects from salesmen.



Item 7 (A) Meck (B) Rushing

Salesmen are rewarded for new ideas in this division.



(A)    (B) ✓

Sometimes my sales manager fails to go to bat for his men.



Item 8 (A) Meck (B) Rushing

The salesman's job produces more tensions than any other job in the company.



(A) ✓ (B)   

I learn more watching my manager make a presentation than discussing a presentation made by me and observed by him.



Item 9 (A) Meek (B) Rushing  
The standards used in rating salesmen in this division are fair.

☐

(A) ☒ (B) ☐

If I planned to work until retirement age, I would like to stay with this company all the time.

☒

Item 10 (A) Meek (B) Rushing  
Everything considered, I am compensated about right for my sales work at 3M.

☒

(A) ☒ (B) ☐

My sales manager thoroughly understands the problems I face on my territory.

☐

Item 11 (A) Meek (B) Rushing  
Opportunities for promotion in this division exist right now for the right man.

☒

(A) ☐ (B) ☒

Considering everything, my present territory is about the right size.

☐

Item 12 (A) Meek (B) Rushing  
My product line is too broad.

☒

(A) ☐ (B) ☒

Salesmen are made, not born.

☐

Item 13 (A) Chatfield (B) Finch  
In this division, Management *acts* on the recommendations of the salesmen.

☒

(A) ☐ (B) ☒

3M compensates its salesmen at least as well as other companies pay for comparable sales work.

☐

Item 14 (A) Chatfield (B) Finch  
The opportunities for salesmen at 3M are as good as 20 years ago.

☒

(A) ☐ (B) ☒

The job that the top executives are doing in this Company is excellent.

☐

Item 15 (A) Chatfield (B) Finch  
If I planned to work until retirement age, I would like to stay  
with this company all the time.

☐

(A)✓(B)\_\_\_

The real "producer" moves ahead in this division.

☒

Item 16 (A) Chatfield (B) Finch  
If my sales manager were to leave his job over-night, I would  
be able to take over quickly and efficiently if I had to.

☐

(A)\_\_\_(B)✓

I expect to become a sales manager some day.

☒

Item 17 (A) Chatfield (B) Finch  
My sales manager assigns first priority to problems brought  
to him by his salesmen.

☐

(A)\_\_\_(B)✓

Any changes that will affect sales work are always announced  
long enough in advance so that I can plan accordingly.

☒

Item 18 (A) Chatfield (B) Finch  
My value to the division is sufficiently recognized by my  
sales manager.

☐

(A)\_\_\_(B)✓

Salesmen are rewarded for new ideas in this division.

☒

Item 19 (A) Chatfield (B) Finch  
My sales manager treats his salesmen better than most other  
sales managers I hear about.

☐

(A)\_\_\_(B)✓

The standards used in rating salesmen in this division are fair.

☒

Item 20 (A) Chatfield (B) Finch  
3M salesmen in this division should be more fully informed as  
to the *manufacturing techniques* used in producing its products.

☐

(A)✓(B)\_\_\_

My sales manager considers me to be one of his "top" salesmen.

☒



Item 21 (A) Chatfield (B) Finch

I think this division would benefit if it dispensed with some of its extreme caution and put on flashier promotional efforts.



(A) ☒ (B) ☐

I need more sales gimmicks to do a really effective job.



Item 22 (A) Chatfield (B) Finch

My sales manager thoroughly understands the problems I face on my territory.



(A) ☐ (B) ☒

When my sales manager criticizes me, I almost always deserve it.



Item 23 (A) Chatfield (B) Finch

The division is extremely fair in what it expects from salesmen.



(A) ☐ (B) ☒

My sales manager is very fair in rating me.



Item 24 (A) Chatfield (B) Finch

My product line is too broad.



(A) ☒ (B) ☐

I learn more watching my manager make a presentation than discussing a presentation made by me and observed by him.



Item 25 (A) Janice (B) Omholt

I would rather have the possibility of more "peaks and valleys" in my income than my present compensation plan.



(A) ☐ (B) ☒

Delivery problems are hurting my sales.



Item 26 (A) Janice (B) Omholt

Everything considered, I am compensated about right for my sales work at 3M.



(A) ☐ (B) ☒

My sales manager gives me plenty of help with my really tough accounts.



Item 27 (A) Janice (B) Omholt  
The job that the top executives are doing in this company is excellent.

☐

(A) ☒ (B) ☐

The real "producer" moves ahead in this division.

☒

Item 28 (A) Janice (B) Omholt  
I would rather have cash incentives in major promotions than merchandise or paid vacations.

☐

(A) ☐ (B) ☒

My sales manager considers me to be one of his "top" salesmen.

☒

Item 29 (A) Janice (B) Omholt  
The standards used in rating salesmen in this division are fair.

☒

(A) ☒ (B) ☐

If I planned to work until retirement age, I would like to stay with this Company all the time.

☐

Item 30 (A) Janice (B) Omholt  
A more liberal expense account would guarantee higher sales volume in my territory.

☒

(A) ☐ (B) ☒

I need more sales gimmicks to do a really effective job.

☐

Item 31 (A) Janice (B) Omholt  
Sometimes my sales manager fails to go to bat for his men.

☒

(A) ☐ (B) ☒

My sales manager should consult me more often for my opinion or advice.

☐

Item 32 (A) Janice (B) Omholt  
One of my weaknesses is my underestimation of potential business in my territory.

☒

(A) ☒ (B) ☐

Total dollar volume is all important in identifying a "top salesman."

☐

Item 33 (A) Janice (B) Omholt  
 In general, the sales management of this division is too remote to have a realistic picture of my job.

(A) ☒ (B) ☐

I would describe my sales manager as understanding.



Item 34 (A) Janice (B) Omholt  
 3M compensates its salesmen at least as well as other companies pay for comparable sales work.

(A) ☐ (B) ☒

I think this division would benefit if it dispensed with some of its extreme caution and put on flashier promotional efforts.



Item 35 (A) Janice (B) Omholt  
 I get full credit from my sales manager when I go out of my way to do something "extra" for the division.

(A) ☒ (B) ☐

Considering everything, my present territory is about the right size.



Item 36 (A) Janice (B) Omholt  
 A 3M policy should be to withhold information on new products from its salesmen until they can take orders for these products.

(A) ☒ (B) ☐

Calls-to-order ratio (% of presentations sold) is a fairly unbiased method of measuring a salesman's effectiveness.



Item (A) \_\_\_\_\_ (B) \_\_\_\_\_

END OF SECTION—GO ON TO GROUP EMPATHY SECTION

(A) ☐ (B) ☐

Item (A) \_\_\_\_\_ (B) \_\_\_\_\_ ☐  
 (A)\_(B)\_  
☐

Item (A) \_\_\_\_\_ (B) \_\_\_\_\_ ☐  
 (A)\_(B)\_  
☐

Item (A) \_\_\_\_\_ (B) \_\_\_\_\_ ☐  
 (A)\_(B)\_  
☐

Item (A) \_\_\_\_\_ (B) \_\_\_\_\_ ☐  
 (A)\_(B)\_  
☐

Item (A) \_\_\_\_\_ (B) \_\_\_\_\_ ☐  
 (A)\_(B)\_  
☐

APPENDIX E

*Instructions for Panels Judging  
Statement Predictability*



## INSTRUCTIONS FOR JUDGING ITEMS

The items concern the attitudes and opinions of salesmen toward their job, products, company, management and fellow salesmen. Sales managers will be asked to predict the responses of their subordinate salesmen on the items. Certain of the items may present an easier prediction task for the managers than are presented by other, less easily predicted, items. Your job is to judge the items as to their "ease of prediction." Consider the information dealt with in the item as well as the exact wording of the item. The method of judging the items is the "successive threes" procedure. First, divide the 73 items into three equal piles of 24, 24, and 25 cards (the extra card may be placed in any of the three piles). The "high" pile will consist of cards which you believe will lend themselves *well* to the prediction task. The "middle" pile will contain cards which you feel will lend themselves only *moderately* to the prediction task, and the "low" pile will contain cards which you judge will lend themselves *poorly or not at all* to the prediction task. Now, repeat with each of the piles, dividing each pile into three sub-piles. You will end up with nine piles of eight cards each with the exception of one pile which will contain the extra card. This nine card pile may be any one of the nine piles. After you have arrived at the nine piles, you may "fool around" with the piles as you wish as long as you wind up with eight piles of eight cards and one pile of nine cards. When you are satisfied with the ordering of the cards, place the piles in order with the *most easily predicted cards* on top and so on down to the pile you feel contains cards which you judge to present the most difficulty to the sales managers in the prediction task. On the top card of the total stack place the number (in pencil) of the sub-pile which contained the extra card. That's all there is to it.

PLEASE DON'T SPEND TOO MUCH TIME ON THIS — THE AVERAGE OF SEVERAL JUDGES WILL BE USED.

THANK YOU.

APPENDIX F

*Report to Branch Sales Managers  
on Empathy Phase of the Study*

CONFIDENTIAL

December, 1960

SUBJECT: REPORTS ON SALES ATTITUDE RESEARCH  
TO: PARTICIPATING SALES MANAGERS  
FROM: DICK HATCH

Last spring you were asked to cooperate in a research project on sales attitudes. Thanks to your 100% cooperation in this research, the project has been completed. The results of the study have been very interesting, and a contribution to the literature in this area will result.

The major finding of the research is that *empathy*, the ability to predict another person's attitudes, is measurable. The research also produced the following conclusions:

- (1) The method of measuring empathy used in this study was successful.
- (2) The thirty sales managers predicted the attitudes of their subordinate salesmen *more accurately* than would have been expected on the basis of "pure chance" alone.
- (3) The thirty sales managers were able to select, *in advance*, the names of their subordinate salesmen whose attitudes would be most accurately predicted.
- (4) As expected, *large* differences in subordinates' attitudes were more accurately predicted than were *small* differences.

A somewhat technical eight page summary report of the empathy phase of the project is enclosed for those of you interested in going into the subject in more detail.

You will also find your copy of the Sales Attitude Report in this envelope. Each of the salesmen in 3M who participated in the survey will also receive a report. Their report will *not* be the same as your report. For this reason, I am enclosing a copy of the report being sent to salesmen, even though the information is included in your own report. I am doing this so that you may discuss the report with your salesmen, if you so desire, without letting them know you have a more comprehensive personal copy.

Thank you once again for your much appreciated cooperation in this research undertaking. I wish you all possible success in your sales career at 3M.

Cordially,

Richard S. Hatch

## REPORT TO 3M SALES MANAGERS ON EMPATHY STUDY

The purpose of this report is to present the results of a recent study of managerial empathy at 3M. The managers were sampled from ten 3M divisions from all areas of the country. The study was carried out in a confidential manner. Only the participating managers and their respective General Sales Managers were informed of the existence of the study. Although information gained from an anonymous Sales Attitude Questionnaire was utilized in the construction of the Empathy Inventories administered in this study, the information was presented in such a manner as to protect individual salesmen. No responses of salesmen could be identified from the Empathy Inventories.

### Group Empathy Inventory Results

The Group Empathy Inventory consisted of paired attitude statements differing in the degree of controversiality or variability of response which they had elicited from the 3M salesmen in the attitude survey. The thirty sales managers were asked to predict which of the two statements in each pair resulted in the greatest "spread" of opinions or attitudes on the part of the 3M salesmen.

It should be pointed out that over 99% of the salesmen contacted responded to the Attitude Questionnaires and returned them. Thus, the data on which the Empathy Inventories were based should be considered as representative of 3M sales attitudes in general.

The results on the Group Empathy Inventory were negative. No sales manager did better than might be expected by chance alone, and the group as a whole predicted with an accuracy no better than would be expected by chance alone. The results obtained from this part of the empathy study have not been included in this report for the reason stated. The interpretation given these results is that the managers were unable to predict the controversiality of the attitude statements. In conclusion, the managers' lack of accuracy provided no basis for demonstrating any ability on the part of these managers to predict the *group* attitudes of 3M salesmen.

### Individual Empathy Inventory Results

The second inventory constructed was called the Individual Empathy Inventory. This inventory consisted of 36 *pairs* of attitude statements. These

pairs of attitude statements referred to the attitudes held by subordinate salesmen assigned to the particular manager for whom the inventory was prepared. A "unique" Individual Empathy Inventory was prepared for each of the thirty sales managers participating in the empathy study. The sales manager was provided the names of the two subordinate salesmen associated with each pair of statements. He was instructed that on *one* of the two statements in each pair the two named salesmen held *identical* opinions. His task was to identify the statement in each pair to which these two named subordinates did *not* reply with identical opinions. The order of the two statements in each pair of statements had been randomized.

Approximately three months before the mailing of the Empathy Inventories to the sales managers, a rating form was completed by each of these managers. The managers rated their subordinate salesmen on the basis of how well they knew them. In short, the rating was designed to reflect the degree of confidence which the sales manager would have in predicting the opinions of the individual subordinates ranked. From these rankings three pairs of sales subordinates were selected. The first two ("best known") salesmen ranked by each manager were selected and shall be referred to as his "Attitude Predictable Subordinates" (APS). The last two ranked salesmen ("least known") were selected as his "Attitude *Un*predictable Subordinates" (AUS). A third pair of subordinates was selected on the basis of a rather complex statistical formula and represented a pair of subordinates averaging approximately in the middle of the rankings. For some managers this third pair of subordinates may average well above or well below the middle of the rankings; however, this pair of subordinates reflects the middle rankings and may be said to be "moderately" predictable by the thirty managers in relation to the other two pairs. This pair of salesmen shall be referred to as his "Attitude Moderately Predictable Subordinates" (AMPS).

The above three pairs of subordinates (APS, AMPS, and AUS) were selected from the subordinate salesmen assigned to each of the sales managers in the study. The purpose of this selection was to determine whether or not the managers were, in fact, more accurate in predicting the attitudes of better known subordinates than in predicting the attitudes of lesser known subordinates.

A second factor was introduced into the construction of the Individual Empathy Inventories. For any pair of subordinates the *degree of discord* in their attitudes on the statement toward which they did *not* hold identical attitudes was varied. Recall that the task required the manager to identify the statement (of two paired statements) upon which the two named subordinates *differed* in their opinions, one from the other. The amount of difference, then, may have been large, as for example where one of the subordinates responded "Strongly Disagree" to the statement while the other responded "Strongly Agree." A statement upon which the attitudes of the two named subordinates



differed to such a large extent was called a "Most Dissimilar Response" (MDR) statement. The statement was then paired with a statement reflecting *identical* opinions on the part of these same two subordinates. The resulting *pair of statements* should be thought of as an "*item*." Each item consisted of two statements, one reflecting identical opinions on the part of the two subordinates named, and the other reflecting divergent opinions on the part of these same two subordinates. In the case of the above pairing of two statements, the resulting item would be labeled an MDR item. This is understood to mean the item was prepared from a statement reflecting very divergent attitudes. The attitudes are very divergent because the two subordinates gave maximally dissimilar responses to the statement when replying to the Sales Attitude Questionnaire.

Other items were prepared using a statement to which one of the subordinates responded "Disagree" while the other responded "Agree." An item consisting of such a statement paired with a statement to which both of the subordinates provided identical responses was labeled a "Dissimilar Response" (DR) item.

Finally, items were prepared using a statement to which one of the subordinates responded "Strongly Agree" while the other responded "Agree" or to which one responded "Strongly Disagree" while the other responded "Disagree." An item consisting of a statement reflecting such a degree of similarity of opinions paired with a statement to which both of the subordinates provided identical responses was labeled a "Similar Response" (SR) item.

The three types of items (MDR, DR and SR) were prepared to determine whether or not the accuracy of the managers' predictions would be influenced by the *degree* of difference in opinions held by the two subordinates for which the prediction was intended.

The Individual Empathy Inventory contained 36 items distributed in the following way among the subordinates assigned to each manager:

*Identification of Scales in Individual Empathy Inventory*

Scale	Type of Subordinate	Type of Item	Number of items
1	APS	MDR	4
2	APS	DR	4
3	APS	SR	4
4	AMPS	MDR	4
5	AMPS	DR	4
6	AMPS	SR	4
7	AUS	MDR	4
8	AUS	DR	4
9	AUS	SR	4

Total 36

The "Type of Item" was randomized within the three scales prepared for a particular "Type of Subordinate."

## Results

It should be borne in mind that the purpose of the study was to investigate a *method* of presenting attitude materials for empathic predictions to judges (in this case sales managers). There was no interest in separating the managers, one from another, in their accuracy of prediction. Any attempt to do so would not be justified, as the managers were each presented with a different inventory. Some were obviously more difficult than others, depending upon the particular items included and the length of time the manager had known the subordinates assigned to him. It is justifiable, however, to look upon the *group* of managers and compare their accuracy, as a group, for one type of prediction with another. For example, one might ask, "Do the managers predict the attitudes of their 'best known' (APS) subordinates more accurately than they predict the attitudes of their 'least known' (AUS) subordinates?" The answer to such a question would be, "Yes." Three graphs are presented providing the following breakdowns:

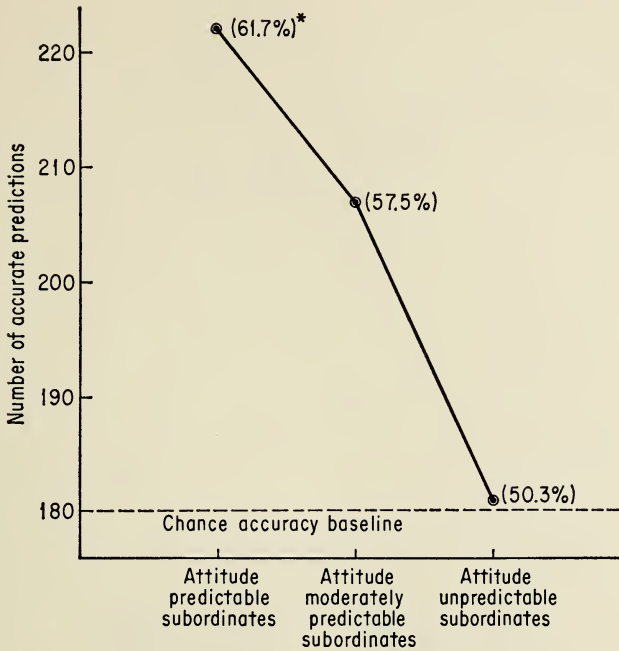
- I. Predictive Accuracy Associated With "Type of Subordinate."
- II. Predictive Accuracy Associated With "Type of Item."
- III. Predictive Accuracy Associated With "Type of Subordinate" And "Type of Item."

For those interested in the statistical significance of the differences provided by the graphs, it should be pointed out that not all differences are significant. The differences presented by the *trend* of results on each graph *are* statistically significant. To assist you in your interpretation of the graphs, an asterisk has been placed opposite the lines in each graph which reflect a statistically significant *trend* in the results. In addition, a "chance" baseline is indicated on each graph so as to provide the reader with a reference representing the accuracy expected if pure chance had been the only factor involved in the predictions. Chance accuracy is that degree of accuracy which would result if, for instance, a manager did not read the items but filled out the inventory by flipping a coin for each item. It may be noted that the managers (as a group) did no better than chance in their predictions for "Attitude Unpredictable Subordinates" or for "Similar Response" items.

A fourth graph has been prepared which provides the total accuracy score for each manager. Each of the 30 scores appears as an "X" so that no manager will be able to identify the score of any other manager. Your score has been circled so that you may place yourself on the distribution in relation to the other 30 managers. Please realize in your interpretation of the location of your score, that the inventory has very little reliability for individual scores of this kind.

By this is meant, should the study be repeated and a new set of scores obtained, your new position would most likely be unrelated to your position in the set of scores presented by this study. Consequently, a particularly high or low score on this distribution has little meaning. The overall results, however, have fairly good reliability. This may be interpreted to mean that should the study be repeated, the trends provided by the first three graphs (Figures I, II and III) would not be altered appreciably. Another way of stating this would be to say that the "group results" are stable because they are based on the results of 1080 predictions, whereas an individual manager's result is not very stable because it is based on 36 predictions.

This is your personal copy of the results of the study. Please keep this report confidential.



**Fig. I.** Predictive Accuracy associated with "type of subordinate" *Note:* The percentage refers to the number of accurate predictions compared with the total number of predictions. For example, 222/360 = 61.7%, the percentage of total predictions on APS which were accurate. The asterisk denotes the trend as statistically significant.

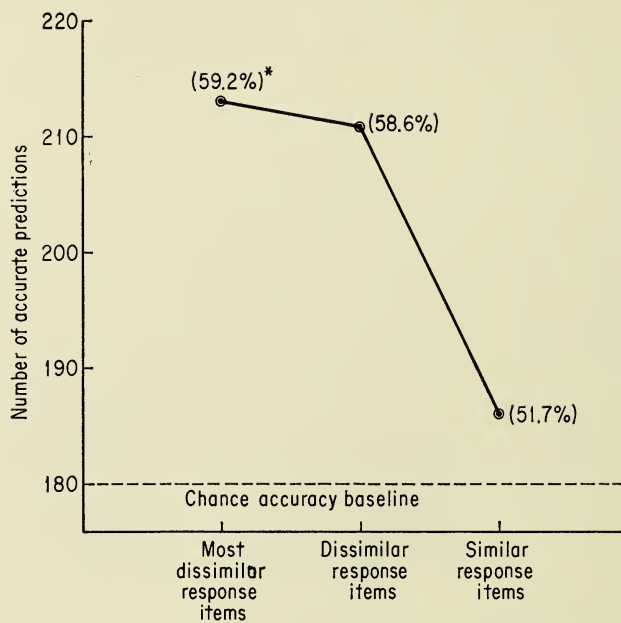


Fig. II. Predictive Accuracy associated with "type of item"



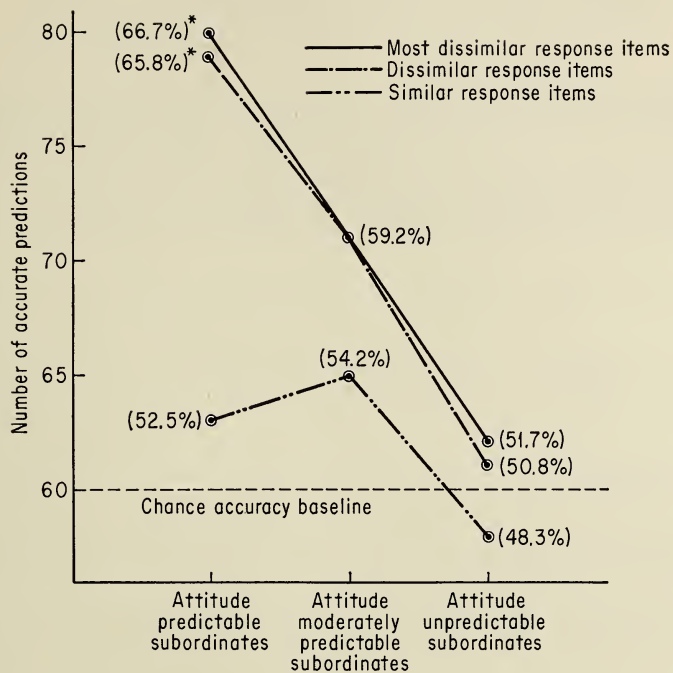
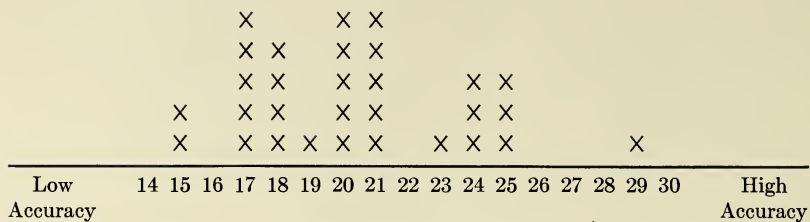


Fig. III. Predictive Accuracy associated with "type of subordinate" and "type of item"



### Empathic Accuracy Scores From Individual Empathy Inventory

**Fig. IV.** Distribution of Managers' Accuracy Scores

NOTE: Each X is the number of correct predictions achieved by an individual manager. Thus, one manager received a score of 29, three managers received scores of 25, and so on. The highest possible score would have been 36, the lowest, 0. The scores are based on the correct selection of the attitude statement *only*. The direction of the difference, or the correct identification of the subordinate "most strongly agreeing" to the statement, did not enter the score in any way.

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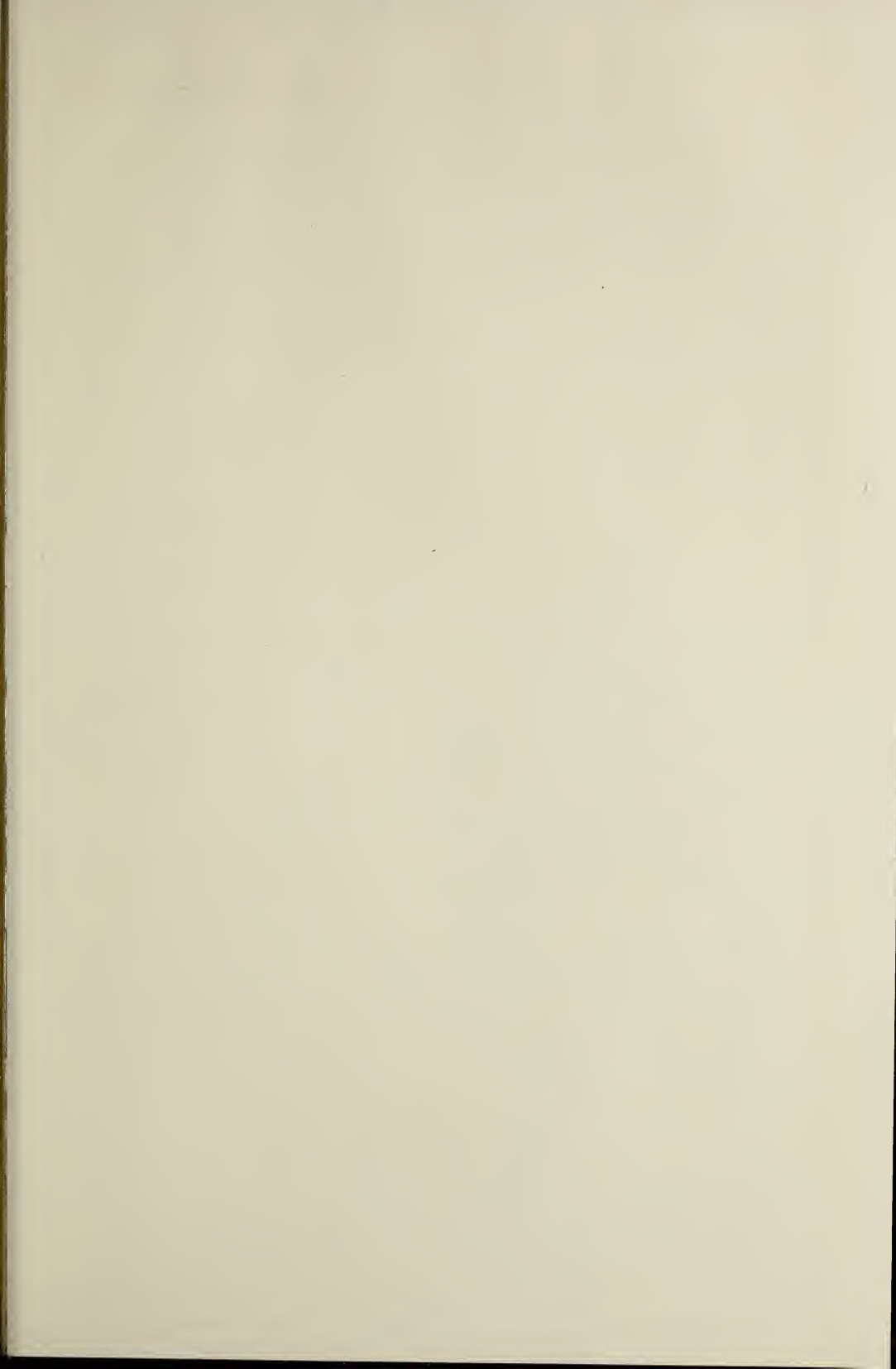
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